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ESSENTIALS
OF
DIET
OR
HINTS ON FOOD
IN
HEALTH & DISEASE
BY
THE LATE
E.H. RUDDOCK. M.D.

In memory of

Ken Daniels

from a gift by

William E. Wadsworth

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ESSENTIALS OF DIET;

OR,

HINTS ON FOOD, IN HEALTH AND DISEASE.

BY THE LATE

E. HARRIS RUDDOCK, M.D.,

L.R.C.P., M.R.C.S.

CORRECTED AND REVISED

BY

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Page 44, line 27, *for* May to September, *read* September to May.

Page 103, line 25, *for* to far too, *read* too far to.

PREFACE.

At the close of the year 1875, Dr. E. H. Ruddock, one of the most industrious workers in the field of medical literature, was called away suddenly to the unknown land. He was summoned from the activity and cares of life to the quiet of the grave; his restless brain was full of project, it had much to plan, much to accomplish, but the great Powers willed it otherwise, they imposed upon him the one thing he had ever denied himself, and that was—Rest.

Amongst his books and papers were found, nearly ready for publication, the following pages. His executors placed them in my hands for supervision. I have carefully gone through the whole of the matter contained therein, and have made some few alterations where, and only where, they seemed requisite; for it was my wish, as far as possible, to preserve in its integrity the last work of our lamented friend.

I will not speak of its usefulness, for this is self-evident; but if there are defects (and what work is without them ?) let us always remember how full of sustained effort were the hands of the author, and let the responsibility of any shortcomings fall upon my own shoulders; for is it not kinder and juster to blame the living, who can reply, than the dead, who speak not ?

E. B. SHULDHAM.

2, Poole Villas,
Upper Richmond Road,
Putney,
London, S.W.

August, 1876.

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ESSENTIALS OF DIET,

OR

Hints on Food in Health and Disease.

CHAPTER I.

REGULATION OF DIET.

THE subject of food is one of deep and constant concern both to the healthy and the sick; not merely for the gratification of the taste, or even the satisfaction of the appetite, but also for the maintenance of life. In health, diet may be left very much to the inclination or taste of the individual, both with respect to quality and quantity; for unless the appetite be perverted and depraved by rich sauces and high seasonings, it is on the whole the best guide. Still, judgment must be exercised, otherwise in respect to eating and drinking man will degenerate into a mere animal. In disease, on the other hand, the appetite fails to guide, and intelligence and judgment are more required for the selection and rejection of the different articles of diet; much more so, because the regulation of both quantity and quality acquires greater importance than when a person is in health. The taste of an invalid is so perverted that he may reject what is most suitable, and desire what would frequently prove injurious ; and his appetite is so precarious that it is not to be trusted to regulate the appropriate quantity. Hence the severity of the disease might be increased, and the life of the patient imperilled, if taste and appetite guided in the selection and taking of food, instead of intelligent knowledge of the properties of different foods, and judicious experience in their administration.

In not a few disorders an acquaintance with dietetics is as essential to the proper treatment of the patient as a knowledge of *materia medica* ; for the action of a medicine may be counteracted by unsuitable diet. It is of great importance to know what variations in food are permissible, for an invalid soon tires of the same food. Tea and toast may be palatable for a time, but "What else may I eat?" is soon the inquiry he ruefully puts. Experience shows too, that there is considerable ignorance of the best methods of preparing the food that is suitable to the patient. In the present day it is deemed desirable to lay down for the guidance of mistresses and servants the principles of cooking, and to form classes and give public lessons in cookery. But these are for the food of the table, not for that of the sick room. The latter requires more care in selection, more special attention in preparation, more delicacy in serving, than the former. For instance, how much good meat has been wasted and how many patients have been troubled, because a cook instead of making good *beef* tea, only made a soup.

Good health can be maintained, and when disturbed can be restored, only by the adoption of such rules of diet and regimen, as will ensure a due supply of healthy blood to the system. The waste that is constantly going on in pursuing the common duties of life must be repaired, and if the quality of the blood be deteriorated in disease it must be improved. But the blood is what the food makes it. As the supply of food, then, is increased or decreased, or its quality altered, so the blood is affected, and the health is maintained or lowered. Hence the importance of attending to dietetic rules. In consequence of the infraction of these rules many diseases arise. The badly-cooked, poor food of the working classes is often innutritious; hence they suffer from various disorders, the best cure for which is not medicine, but sufficient, suitable, and properly prepared food. Any one who has been much among the poor, visitors who have tended the sick, practitioners who prescribe in dispensaries, know full well how important a part deficiency or sufficiency of appropriate diet plays, in the condition of those to whom they minister.

The digestibility of food and its subsequent assimilation depend, as we know, as much upon the mode of its preparation as upon the condition of the person who eats it. If this is true of the "healthy," it is more intensely true of the "sick." Not unfrequently a change in the method in which food is cooked, is the simple means whereby it may be rendered acceptable, and easily digested by the individual, who had previously suffered from taking it. Such change may make all the difference for the relief of some functional disorder of the alimentary canal. In chronic diseases of the digestive organs, in which the appetite may be unimpaired or even inordinately increased, attention to some dietetic regulations is of great importance; for in such cases there is considerable danger lest the boundaries of prudence should be overstepped in yielding to the urgent claims of appetite, in taking excessive or unsuitable food.

It is impossible to lay down regulations for the rational and methodical use of food in health and disease; for in this as in other matters, cases must be individualised. Sex, age, employment, condition of life, physical form, idiosyncrasies, circumstances, —all are elements in the solution of the problem, "What to eat and what to avoid." The father must consider the wants of the family, the mother the special needs of a frail child, the physician the peculiar requirements of his patient, in making arrangements for suitable dieting;—no precise rules—hard and fast lines—can be laid down. General principles alone can be enunciated; known scientific facts can be promulgated; well-tried common experience can be recorded; then out of the materials thus supplied the most fitting for each case must be selected with intelligence and judgment. Even when a selection is thus made, it unfortunately too frequently happens that *instructions* are not observed. Ignorance, prejudice, and carelessness interpose and frustrate the fulfilment of good intentions and judicious advice. Nevertheless, health is maintained, and, where impaired, is often restored in spite of these drawbacks. Still, one cannot but reflect that robust health would be more common, recovery more rapid, and mortality more diminished if dietetic rules were universally observed.

There is a neglect, and even a positive violation, of instructions to which we must here enter our emphatic protest. A physician prescribes certain food just as he prescribes certain medicine. But while the medicine may be honestly given, the food is withheld or other food is substituted. The patient, and the friends of the patient often deceive the physician with reference to diet, and deem the original transgression and the subsequent deception, quite venial offences which it is unnecessary to confess. The consequence is that the recovery of the patient is retarded, and the physician and his treatment are disgraced. There are always occurring infractions of dietetic instructions, of which nothing is known unless the aggravation of the disease is so obvious as to lead to disclosure of the indiscretion.

The impossibility of prescribing fixed regulations for diet will also be evident from a consideration of the circumstance that some persons can take what others are obliged to reject. In fact, there is truth in the saying, "What is one man's meat is another man's poison." Even when there is a similar derangement of the digestive organs some persons can eat with impunity what others must eschew. Some of the least digestible articles of food, such as fried fish, cabbage, cheese, fats, etc., can be eaten by some dyspeptics while others cannot partake of them without suffering severely.

In considering the kinds and proportions of food to be eaten, it should be remembered that even healthy persons do not always assimilate all the elements possible, for some escape digestion and pass out of the system with the waste, and allowance must be made for this. Food which requires some strength of digestive function may be thrown away upon an old person whose limited secretions may not dissolve it, and who may therefore be only insufficiently nourished by it, while the same food could be easily and advantageously appropriated by a young person. On the other hand, some easily-digested diet which would be suitable and sufficient for an old man would be unsuitable and insufficient for an active youth. The employments of life also necessitate variations in kind and quantity. Even appetite is not an infallible guide. Work that demands physical exercise, and that calling for mental exercise, out-door and in-door work, demand difference in diets. The nursing-mother requires more food and of a different kind from that taken by the quiet housewife of sixty years of age. The patient suffering from chronic unhealthy discharges must meet that drain upon the system. Morbid conditions and functional derangements of different organs, *though* insufficient to be regarded as an "illness," or to keep a person from ordinary work, require consideration in regimen. The good cheer which includes a considerable quantity of nitrogenous aliment is prejudicial to a gouty subject, beneficial to a man who takes much exercise in the open air. The bread, which is "the staff of life," must be withheld from the diabetic. So that no dietetic rules can be laid down to suit all cases either in health or in sickness.

When the body is in a feverish state, the mouth dry, the thirst great, and the pulse accelerated, very little gastric juice is secreted. In such a case it is obviously improper to take food which requires the solvent of the gastric juice for its digestion. It may contain the essence of nourishment, the very best food cooked in the very best manner, but utterly useless in the stomach, irritating to it and therefore injurious. In the feverish state, rump-steak is consequently very unsuitable diet,—more unsuitable if helped down with onion sauce and condiments, and bathed with a glass of beer. No nourishment is derived from it; it should therefore be avoided till feverish symptoms have passed away, and the stomach has regained its tone, however palatable the steak may be, or however anxious friends may be to strengthen the patient. At the commencement of fever there is loathing of everything but cold water. After a while the feverish symptoms abate, then toast or barley waters are agreeable; then luscious fruits are desired and relished, the sugar they contain passing into the system through the mucous membranes without digestion and making no demand on the powers of the stomach. Subsequently, the gastric and intestinal juices are sufficiently secreted to digest farinaceous food; by degrees the patient is able to satisfy his natural appetite, convalescence becomes more rapid, and by and by rump-steak may come to table again. All this is dietetic regimen.

In brief, the regulation of diet is of importance to both the healthy and the sick; but definite rules cannot be laid down by which the diet may be regulated; each one must judge for himself, or must be guided by the judgment of others,—judgment which we hope may be intelligently formed and directed by a perusal of the following pages.

CHAPTER II.

RELATION OF FOOD TO NUTRIMENT.

FOOD has been defined as a substance which, when introduced into the body, supplies material which renews some structure or maintains some vital process. Medicine modifies some vital action, but does not supply the material which sustains such action. A supply of suitable food is therefore essential during the medical treatment of disease; for medicine alone will not, and is not designed to, sustain life. Neither, on the other hand, will changes of food so modify vital action when it is disordered as to render the administration of medicine superfluous. Nevertheless it must be allowed that diet does play an important part in promoting recovery from disease, and that some kinds of food do stimulate vital action in a degree far beyond the actual amount of nutritive material they supply.

The body requires, for the maintenance of its existence, for its growth, and for the performance of its functions, a variety of kinds and a variety of forms of food ; but as its constituent elements are limited in number, the chemical composition of the food need not include a great variety of factors. Carbon, hydrogen, oxygen and nitrogen exist in far larger quantity than any other elements; sulphur and phosphorus are also present ; but other constituents exist in only exceedingly small quantities. Food should, therefore, supply all these requirements in different combinations if the body is to be maintained in health. It is not, however, necessary that one kind of food should yield every kind of material required in the structure of the body, for then that one would be sufficient ; but it is essential that it contain some of the material required; and it is also essential that, by a combination of different foods, all the material required is supplied. Some foods are undoubtedly more valuable than others, either because they supply a large quantity of nutriment in a small compass, or because it is in such a state that it can be easily assimilated. These are of course to be preferred when the functions of the body are deranged by disease.

Food is required by the body for two chief purposes, viz. :—to produce and maintain the various tissues while they are fulfilling their divers vital functions, and to generate heat, without which life would cease. That the maintenance of the tissues is of great importance is evident from the decay of life which is invariably associated with the wasting of the tissues. That the generation of heat is essential is evident from the fact that while waste of tissues may go on for a long period before death occurs, the removal or lessening of heat is soon followed by the termination of life. When the body is in a state of disease, we have, therefore, to meet these two principal requirements—the maintenance of tissue and the maintenance of heat. Now, in accordance with these requirements, there are foods which are assimilated by particular tissues, and go to maintain them, called in general terms "flesh-formers;" others sustain the vital heat, and are known as "heat-formers"; others again both nourish tissue and supply heat.

Food is derived from all natural sources—from earth, water, and air; from solids, liquids, and gases; from substances living and organic, or inanimate and inorganic. The food thus variously derived is converted by the action of vital forces into those compounds, which the body can assimilate and change into a part of itself. But before it can be so assimilated in the human body, the greater part of it must become organic. Chemical elements uncombined are of no service as food. They must be built up into some living organism to be of service. Hence our food generally consists of animal and vegetable products, the animal having been also previously derived from the vegetable. Indeed, all our foods are primarily derived from the vegetable kingdom; for no animal has the physiological power of combining mineral elements so as to form them into food. But the vegetable assimilates inorganic materials under the influence of light, storing up in itself various elements in different combinations essential to the formation and nutriment of vegetable and animal structures. So, without taking much inorganic matter directly into the system, we obtain what is necessary through its presence in the organic.

In popular language, what is taken into the system is termed "food" and "drink," the former including solid, the latter liquid, matter. But, convenient as these designations may be, they do not accurately represent the facts of the case. Milk, for instance, is very rich in solids; while nine-tenths of the component parts of turnips consist of water. A better classification, therefore, is to arrange all food, whether liquid or solid, into organic and inorganic portions—the organic comprising those elements which are combined and produced only through the agency of some living structure, whether vegetable or animal, and the inorganic those which are derived directly from the mineral kingdom. Water and salt are inorganic.

In view of their chemical composition, organic foods are generally classified as nitrogenous and non-nitrogenous. The nitrogenous consist of carbon, oxygen, hydrogen, and nitrogen, in different proportions, with generally the addition of sulphur and phosphorus. The non-nitrogenous consist of only the first three ingredients.

It will be observed that the presence or absence of nitrogen constitutes the chief difference between these classes; and as it enters very largely into the composition of the body, an abundant supply of it is essential. Some may suppose that, as this is an important constituent of the atmosphere—four-fifths of which are nitrogen—it might be imbibed from the air; but it is not. It is derived from the food, and must be introduced into the system in combination with other organic elements.

Among nitrogenous foods, the flesh or muscular tissue of animals contains the elements which are required for forming flesh and generating heat. Hence life could be maintained for a considerable time on animal food alone. Bread, among vegetable foods, also contains nearly all the elements required for nutrition.

Nitrogenous foods must all undergo the process of digestion before they can be assimilated and form part of the body. This process is really one of comminution and liquefaction. The food is reduced to a finely divided state by the action of the teeth, the muscles of the mouth, and the saliva; when it reaches the stomach it is further disintegrated by the action of the *gastric* juice with which it is brought into contact by the motion of this organ. Thence it passes out in a state of fluidity, as a very soluble and diffusible product, called *chyme*, and easily transmitted to the blood vessels. The food has now lost its characteristic properties, but how the change has been wrought it is not easy to determine. Should any portion of the food, however, pass from the stomach undissolved, it is subjected to a supplementary digestive process in the bowel. The intestinal fluid and the pancreatic juice act as solvents; and the bile (though it does not appear to possess any solvent power) is incorporated with the food, which is now in a condition ready for absorption and for application to its proper use. Under meat diet there is a more copious secretion of gastric juice, under vegetable the saliva is more abundant, showing that there is provision in the system for variation in the food, and that uniformity in food is immaterial.

The primary use of nitrogenous food is to develop and renew the various tissues; its secondary use is to facilitate the absorption of non-nitrogenous food. Wherever there is life, nitrogenous food must be present to sustain it, non-nitrogenous food contributes to its support: without the former the latter would be useless; the former being present, the latter is a very valuable auxiliary. Nitrogenous food is the main tissue-former, but it also to some extent produces force. Non-nitrogenous food produces force, but it also in some measure contributes to the formation of tissue. Indeed, the best materials for the production of working power, as well as heat, are the non-nitrogenous principles, and of these the fats are more effective than others.

Non-nitrogenous food comprises (1) fats, (2) starch and sugar, (3) alcohol and vegetable acids.

Fat is found in both animal and vegetable products. It undergoes little change in the mouth and stomach; but by the action of the pancreatic juice in the small intestine, it is digested and reduced to a minute state of subdivision, ready for absorption through small projecting filaments (*villi*) into the lacteal system, by which it is conveyed into the general circulation of the blood. It is by this means deposited in the various tissues, fills up interstices between muscles, bones, and vessels, gives regularity to the form of the body, assists in the retention of the heat of the body, and forms a reserve of force-producing material, to be utilised when required. It holds the highest place as a heat-former, for by its oxidation heat is generated in the system. It also appears to facilitate the assimilation of other forms of food; and there is a prevalent opinion that if it is not supplied in sufficient quantity scrofulous disorders are developed.

Starch cannot be assimilated without change; when raw, it passes out of the system unaltered. If it is boiled, the granules burst, and the particles are ready for conversion into sugar. This conversion would take place in the mouth under the influence of saliva if the food remained there for a sufficient length of *time.* But it is usually swallowed at once; and when it reaches the stomach the gastric juice arrests the action of the saliva. It then passes on in a semi-fluid state to the small intestine, where the digestion really takes place. The intestinal secretion and the pancreatic juice act energetically on the starch, soften and break up the granules, and convert the particles into sugar.

Sugar is so easily diffused that it requires no preliminary digestive process to prepare it for assimilation. It passes without change into the circulation. If, however, it is supplied in excess of the requirements of the system, when it reaches the stomach it undergoes lactic acid fermentation, and thus occasions the acidity from which some dyspeptics suffer. When not in excess, the sugar is carried on to the liver, where it undergoes certain changes which lead us to conclude that it contributes to the production of fat, but not to the production of force.

Alcohol is very rapidly diffused through the system. Some portion of what is taken is evaporated through the lungs and expired with the breath; some is eliminated by the liver and kidneys; and the rest remains for a long time diffused through non-excreting organs, where it is transmuted into new compounds. Its actual dietetic position is scarcely determined, although many researches have been made, and much has been written on the subject. The most recent researches, however, appear to show that alcohol yields no nutriment, but that it acts merely as a stimulant, with variable advantage or injury to the constitution. It contains no nitrogen, and has therefore none of the qualities of tissue-forming foods; nor is it capable of being transformed into them; hence it is not a food in the sense of being a constructive agent in building up the body. It is very doubtful whether it produces fatty matter, except by an indirect and injudicious interference with natural processes; though there is reason to suppose that it lessens to some extent the elimination of fat already existing. If there be any fattening, it is not confined to the external development of fat, but it extends to a degeneration through the minute structures of the vital organs, including the heart, inducing what is termed its "fatty degeneration." Alcohol does not produce warmth, nor sustain it; the glow which is felt is deceptive, for that is due to congestion, like the warmth of inflammation; hence the serious error of taking it in cold weather, when the alcohol and cold act in combination, producing congestion of the lungs and other vital organs, and often leading to fatal consequences. Nor does alcohol give and sustain strength; there is muscular excitement, which is mistaken for muscular power, produced at the expense of the tissue and drawing upon its reserve of force; there is, in fact, nervous stimulus, but muscular enfeeblement. There are unquestionably occasions when it is necessary to produce the stimulus, even at the cost of subsequent reaction and debility; when, for instance, an enfeebled or fainting heart is temporarily relieved by that relaxation of the arterial vessels which the diffusion of alcohol through the blood induces; or when the flagging circulation of approaching death needs to be quickened that life may be maintained. But the impression that this spirit gives permanent strength for sustained work is as erroneous as it is common. When alcohol is taken in very *moderate* quantity it increases the activity of the circulation, causing the heart to beat more rapidly, the pulse to become faster and fuller, and the arteries and arterioles to dilate (thus producing a characteristic flushing of the face); it increases the secretion of urine, stimulates the appetite, aids digestion, excites the nervous system, and exhilarates the intellectual and emotional faculties. But the price to be paid for all this may be too high, and the habitual use of even a moderate quantity may lead slowly but surely to degenerative changes. The large majority of those who drink alcohol with any of its various admixtures are injured by it,—especially the young and "full-blooded."

Taken in *large* quantities, the *immediate* effect of alcohol is depressing and narcotic. It produces paralysis of the minute arterioles of the circulatory system, so that they lose some of their contractility, and become dilated with the flowing blood. This is seen in flushing of the face. But all the internal organs are similarly affected, so that there is general vascular engorgement and consequent derangement and exhaustion. Simultaneously, in consequence of its affinity for water, it alters the condition of the blood, causing arrest of chemical changes and alterations in the composition and forms of the corpuscles. Then there follows an affection of the spinal cord, involving enfeeblement of nervous stimulus and a corresponding deficiency of control over certain muscles. A tottering gait is an indication of this. The brain centres are then affected, and the controlling influence of the will and judgment are lost, and the emotions and instincts are not held in due subordination. This is followed by complete collapse of the nervous functions, the senses becoming all benumbed, and consciousness lost.

The *ultimate* effect of immoderate drinking is complete degeneration, and this degeneration is certainly not confined to those who are notoriously intemperate, or may be designated drunkards. Women accustomed to take wine in quantities which they would not deem immoderate, and who would be shocked at the imputation that they were taking too much, have proved unfortunately that they have really taken to excess. The appetite is impaired, digestion is arrested, dyspepsia follows, sleeplessness is produced, muscular power, especially of the legs, is enfeebled, the organic tissues suffer direct deterioration in their structure, and a diseased state is set up in the internal organs. The heart is enlarged, its relative parts being thrown out of proportion, its orifices dilated, its valves stretched, its filamentous cords dilated, and its walls thickened. The liver also undergoes structural changes; it becomes enlarged by the production of albuminoid and fatty deposit, or by the increase of connective tissue, and finally there supervenes contraction, atrophy of the canals and cells, forming that gnarled condition known as "gin-drinker's liver." The kidney is deteriorated by fatty modifications, and its functions are impeded. The minute vessels of the lungs are relaxed and easily congested, and the molecular constitution of their tissue is altered: hence chronic bronchitis is common among those who take much alcohol; while consumption, often unsuspected, but of a most fatal form, carries off hard drinkers in the prime of life. Other organic changes also take place, the crystalline lens and retina of the eye are injured and the sight is impaired, an excess of salts is produced in the urine, and gravel and stone are deposited; indeed, there is not an organ that is unaffected. The brain and spinal cord and the whole nervous system suffer, giving rise to serious derangements, which manifest themselves in the worst forms of nervous disease, such as loss of memory and speech, epilepsy, paralysis, or insanity. And these derangements, it should be remembered, are more or less transmitted to degenerate offspring. Of the moral effects we say nothing here, although we cannot be oblivious of them.

The effects of alcohol are no doubt much modified by the substances with which it is associated,—the water, the acids, the oils, and the extractives; saccharine and nitrogenous matters stimulate the respiratory functions, while its dilution lessens the demand on the water of the blood and the secretions. The obviously useful action of alcohol is, when taken in small quantities to improve the appetite, and to promote activity of the circulation, which within certain limits may be beneficial. It may thus ward off morbid conditions consequent on atonic dyspepsia, and may prevent anæmia, emaciation, premature old age from worry, melancholy, sleeplessness, and other ill effects.

For such action a man ought not to take more than the amount of alcohol contained in two glasses of a light sherry in twenty-four hours; a woman less; any amount beyond that produces decidedly bad effects. When taken it should not be in the morning, or when work has to be done, but when the toil has produced stiffness, when the brain-wear has wrought weariness, when the nerve-tissue has been strained or drained, when the evening of the day has come. It should never be taken between meals, but only when some substantial food is taken; never when it lessens appetite, but only when it increases the desire for and power of digesting food; never in a close, impure atmosphere, but when a free supply of fresh air fully and promptly aërates the blood; never adulterated, but always good. Young men and women, and above all children, should take no alcohol at all. Invalids should be guided by their professional advisers.

Water undergoes no chemical change in the system, and produces no force; yet it is indispensable as a component part of food, for it facilitates the chemical changes which take place in the food.

The other inorganic principles which are necessary to a healthy condition of the body are compounds of lime, potash, magnesia, soda, and iron; together with phosphoric acid, carbonic acid, chlorine, and sulphuric acid. Lime and phosphoric acid are of most importance.

The amount of food required varies with different individuals; very much depends on age, sex, climate, season of the year, physical and mental exertion. All vital processes, including the assimilation of food, are most rapid in early life, and least rapid in old age. In childhood and youth there is also the necessity for making provision for the growth of all parts of the body, as well as the rapid discharge of functions. Man requires more nitrogenous food than woman. The vital processes are also most active in spring, least so at the end of summer; more energetic in cold climates than in hot, in highlands than in valleys. Exertion always stimulates these processes.

CHAPTER III.

ANIMAL FOOD.

THE structure of animal food is identical with that of the human body; hence nothing is required in addition to it in order to maintain life. Its chief characteristic is that it contains a large proportion of nitrogenous material; but with it there is usually mingled, either naturally or artificially, so much fat or other non-nitrogenous material that it is adapted both for the formation of tissue and for the production of heat and other force. Undue importance is given by some persons to animal food, as if that alone really nourished the system, and supplied what is required for work and recovery of strength. No doubt it appeases hunger more thoroughly than vegetable diet, and satisfies longer, because it is digested in the stomach, and that organ gives signs of repletion and retains this kind of food for a longer time than vegetable food. Animal food is also easily cooked, and appears to be more easily digested than vegetable; it increases the amount of fibrin, phosphates and other salts, and the number of red corpuscles in the blood; it produces firmness of muscle, it increases the urinary secretion both in quantity and in amount of effete nitrogenous matter, necessitating the consumption of an increased quantity of fluid. Vegetable food has a tendency to increase the deposition of fat. Mr. Banting found that by lessening the amount of vegetable diet he was enabled to reduce his corpulence: this result might be due not only to diminution of the fat-producing elements, but also to the increased oxidation through the lungs induced by the excess of nitrogenous materials. Physiological considerations and experience teach us that a mixed diet is best adapted to the requirements of the body; and that the proportion of animal food should be one-fourth, or rather more, of the total supply.

Animal food comprises (1) the different parts of animals, (2) eggs, (3) milk and its products.

The flesh of young animals is more tender than that of old, but it is not so easily digested. The flesh of middle-aged animals is more nutritive, and has a fuller flavour than that of young. The flesh of old animals, though nutritive, is often very tough. Young and quickly fed animals have more water and fat in their flesh, whilst older and well-fed animals have flesh of a firmer touch and fuller flavour, and are richer in nitrogen. The former may be more delicate, the latter are more nutritious; animals of middle age, therefore, afford the most digestible and fullest flavoured food. The larger the animal, the coarser the meat. The flesh of the female is more finely grained and delicate than that of the male. Animals that have been deprived of their reproductive organs are larger, fatter, more tender, and form better food than those that have not. During the breeding season flesh is unsuitable for food. The flesh of wild animals has less fat than that of well-fed domestic animals, but it has more flavour. The character and flavour of the meat are much affected by the food eaten. The fat of cattle fed on oil-cake is yellow; the flesh of sheep fed on turnips has a flavour of the vegetable; that of mountain sheep is affected by the fragrant herbage on which they graze. Violent exercise just before death makes flesh more tender than if the animal had been still. The removal of blood in slaughter, while it involves waste of nutritive material, improves the flavour of the flesh, and renders it more easy of preservation. Hanging the meat improves its tenderness, if it be kept after the *rigor mortis* has passed away. But the best meat may be rendered unwholesome by decomposition. Low-priced meat may be obtained which is very dear, for the animal may have suffered from disease, and thus become unfit for human food. Animals that have been saturated by powerful medicines are also unfit for food; indeed, serious effects have been known to be suffered by those who have eaten the flesh of cattle so treated.

Good meat, according to Dr. Letheby, has the following characteristics:—

1. It is neither of a pale pink colour nor of a deep purple tint; for the former is a sign of disease, and the latter indicates that the animal has not been slaughtered, but had died with the blood in it, or had suffered from acute fever.

2. It has a marbled appearance, from the ramifications of little veins of fat among the muscles.

3. It should be firm and elastic to the touch, and should scarcely moisten the fingers—bad meat being wet, and sodden, and flabby, with the fat looking like jelly or wet parchment.

4. It should have little or no odour, and the odour should not be disagreeable, for diseased meat has a sickly, cadaverous smell, and sometimes a smell of physic. This is very apparent when the meat is chopped up and drenched with warm water.

5. It should not run to water or become very wet on standing for a day or so, but should, on the contrary, dry upon the surface.

6. When dried at a temperature of 212° or thereabout, it should not lose more than from seventy to seventy-four per cent. of its weight, whereas bad meat will often lose as much as eighty per cent.

7. It should not shrink or waste much in cooking.

Salted Meat is objectionable on several grounds. Its common use when fresh meat can be obtained is therefore undesirable, and it is unsuitable for invalids. It is deficient in nutritive value and natural flavour by the extraction of a considerable quantity of the juices of the meat. It is deficient in tenderness, and therefore to some extent insoluble by the digestive secretions. It also acts prejudicially on the system, by the introduction of an excessive quantity of salt and saltpetre.

Beef and *Mutton* are the principal fresh meats.

The former is of a firmer and closer texture than the latter, contains more red blood juices, has a fuller and richer flavour, containing more iron, is more satisfying and more strengthening, and makes greater demands upon the digestive powers. Yet it is a common article, not only at the ordinary dinner-table, but even in the sick-room. In many cases of illness, if properly cooked, it may be eaten with impunity, but in Enteric fever, and other diseases where the bowels are inflamed and tender, it produces, in its ordinary form, either as steak or as a cut from a joint, injurious effects. Even in the form of beef tea it often increases the irritation, keeps up the fever, and aggravates the diarrhœa; consequently in such cases it should, for the most part, be excluded from the diet list. As beef requires considerable effort on the part of the stomach to convert it into chyme, it is contra-indicated in acute maladies until convalescence has commenced, when by allowing the patient to extract the juice at first, and then swallow a few shreds of the meat, daily increasing the amount swallowed, the digestive organs will be finally won back to their normal condition and capability. Nevertheless, there is a form in which beef has been most beneficial. Administered in a raw state, when finely divided and reduced to a pulp, it is very useful in some derangements of the stomach. Although not very palatable at first, a taste for it is soon acquired. In this form it has proved very valuable in Cholera infantum and Dysentery, when everything else failed. It should be prepared by scraping with a spoon, and seasoning with a little salt.

Mutton or mutton broth is much to be preferred for delicate persons. Mutton broth has less nutritive value than the broth of beef, but having a delicate flavour it is preferred by many persons. It is, however, too rich in fat to be easily digested, unless a large portion of that substance be first removed. Lean mutton, then, should be selected for making broth; the scrag of the neck is a suitable joint. When a patient is so far convalescent as to require solids, a mutton chop, properly cooked, is generally most suitable. Broiling should be preferred to frying, and to cook mutton chops nicely a clear fire is absolutely necessary. The chops should be sprinkled with salt and pepper, and placed over the fire for six or seven minutes. They should not be pricked, but should be frequently turned to insure their being thoroughly cooked.

Veal and *lamb* are more gelatinous, less stimulating, less nutritious, and less easily digested than beef and mutton. But the character of the flesh varies very much in delicacy, nutritive value, and digestibility, according to the mode in which the animal has been killed. Veal broth is generally prepared from the fleshy part of the knuckle. It is not very palatable; and as it does not contain the nutritious qualities of beef tea or mutton broth, it is scarcely advisable to introduce it into the sick-room, except for the sake of occasional variety. The lean of a lamb chop cut from the loin is often a morsel which tempts the flagging appetite.

Pork, on account of its fatness, is not so easy of digestion as other meats. *Bacon* and *ham*, however, do not so easily disagree with the stomach; and in this respect they occupy an exceptional position in relation to fat meats and cured meats. Fat bacon, taken with any substances that are rich in nitrogen, is very nourishing. It increases the nutritive value of eggs, poultry, peas, and beans. All pork should be most thoroughly cooked, because it is more frequently diseased than any other kind of meat, and the disease, being due to the presence of parasites, is particularly injurious to man. *Sucking pig* is a great delicacy, but of small nutritive value, and unsuitable for invalids.

Venison is lean, dark-coloured, and savoury, having more the character of game than of butcher's meat. It is very easily digested, and is therefore suitable to the dyspeptic and convalescent; its rich flavour may, however, constitute an objection to it, and if it has been kept too long before being cooked, it is very apt to produce diarrhœa.

Gelatine, which forms the basis of soup, is the nitrogenous principle of *bones*. They contain a considerable quantity of nutritive matter; but for its extraction they should be broken into small pieces and boiled for many hours, if possible in a "digester." Although investigators have found that gelatine fails to nourish animals when given by itself, it is now a well-established fact that in combination with other substances it can be turned to account in the system as a force-producing element, thus acting as a protein compound. In the form of jelly, with or without wine, when not tough, it is readily digested, and serves to allay the feeling of emptiness and hunger when more nutritious food cannot be well taken. Being demulcent, and possessing no irritating qualities, it proves very useful in inflammatory affections of the bowels. As it is soothing and grateful it may be allowed where diarrhœa is not to be feared. In the preparation of gelatine jelly it is very essential to soak the gelatine, as procured in the shops, in cold water for some time.

Liver of the calf, lamb, or pig, when fried, is rich and savoury, but is not suitable for those whose digestive powers are feeble. *Kidney*, *lungs*, and *heart* are as nutritious as lean meat, but are also unsuitable for invalids. *Tripe*, when gently boiled for about an hour, is a food of somewhat delicate and agreeable flavour, and of very easy mastication and digestion, but from its fatness is rather rich. The ease and rapidity with which it is digested, and the considerable nutriment which it affords, seem to render it most suitable for the sick, but in practice it is found that the absence of decided flavour, its unsatisfying character, and the unusual nature of the food prevent its selection by the sick generally. *Sweetbread*—is easily digested, and when simply cooked is not unsuitable for the convalescent, but when richly cooked will disagree with the dyspeptic and invalid. The *head* of the *ox* or *sheep*, boiled for eight or nine hours to extract the nutriment, makes excellent soup. *Ox-tails* are commonly employed for the same purpose. The *tongue* of all animals, especially of the ox, is a great delicacy, but, from its being fat and eaten salted, is not adapted to weak stomachs. *Sheep's Trotters*, as a bridge from soup to meat, are excellent when well boiled. *Sheep's brains* are highly commended as a means of conveying phosphates.

Preserved Meat is not so nourishing as the same amount of properly cooked fresh meat, on account of the over-cooking demanded by the process. It has the recommendation, however, of being much cheaper than fresh meat. It may be rendered more palatable by being minced and warmed or stewed with vegetables, but to prevent further loss of nutritive properties it is best eaten cold.

Extract of Meat should consist of the concentrated essence of the juice of flesh; but a good deal that is sold as such is solidified soup, with the addition of gelatine. Good extract is slightly acid, of a pale yellowish-brown colour, with an agreeable meat-like odour. It should be perfectly soluble in cold water, and should not contain albumen, fat, or gelatine. It possesses more the character of a vital restorative than a nutritious food. It is deficient in albumen, and, as in the case of soup and beef tea, its nutritive power must be assisted by vegetables and other substances which are rich in nitrogenous matter. Biscuits are now made combining the extract with a proper proportion of flour. The extract may often prove a fair temporary substitute for beef-tea when there is not time nor convenience to make the latter, but it must not supersede it in the sick room. When taken during fatigue it has been found to be remarkably restorative, increasing the power of the heart, and removing the sense of fatigue following exertion. Mixed with wine, Dr. Parkes states it has been employed with great success in rousing men in collapse from wounds. It was the means of saving the lives of many wounded men in the Austrian army in 1859, and in the war between the Northern and Southern States of America. It would, therefore, be useful after surgical operations.

BIRDS occupy an important place among the sources of food, especially in the diet of the sick-room. Their flesh consists of delicate muscular tissue, without any admixture of fat, being in some cases white, in others dark-coloured. The juices are deficient in red blood, and have a more delicate flavour than those of adult animals. One can truly affirm that there is no bird, or part of a bird, which may not be eaten with safety by man.

Poultry, such as *fowl*, *turkey*, and *guinea-fowl*, are white-fleshed, have a delicate flavour, and are tender and easily digested. As their flesh is milder and less stimulating than that of ordinary meat, it is well adapted to those whose powers of digestion are enfeebled. But they are not very nourishing; they contain too little fat, and need pork or bacon to supplement this deficiency. Sexless birds, as the capon and pullet, grow larger, fatten better, and are more tender and delicate than ordinary poultry. *Ducks* and *geese* are not so well adapted as poultry for the sick room, for their flesh is harder, richer, and more highly flavoured.

GAME—*pheasant, partridge, grouse, woodcock, snipe,* and *quail*—has a delicate flavour, which improves by keeping (fuller and stronger than that of domesticated birds), is strengthening, tender, and easily digested. It is thus tempting to the appetite, and is well adapted to a weak stomach. It therefore forms a valuable diet for the sick room, and can be taken when flesh meat and poultry are rejected. But the darker flesh of game requires culinary management to render it digestible.

Wild-fowl, with its close, firm flesh and strong flavour, is not adapted for dyspeptics and invalids.

Pigeon and smaller birds are usually tender and relishing, and may be eaten with safety by the convalescent.

FISH is very valuable as food if eaten as soon as possible after capture. There is a prejudice against it from the belief that it has no nutritive value, but this probably arises from the fact that it does not easily satisfy hunger, and is quickly digested, so that the appetite soon returns. It is, nevertheless, highly nutritious. Fish-eaters, says Dr. Davy, are "especially strong, healthy, and prolific. In no other class than in that of fishers do we see larger families, handsomer women, and more robust and active men." Fish, especially white fish, is less stimulating than meat, contains little fat, is easily digested, and therefore forms the most suitable aliment for invalids, dyspeptics, and those who suffer from brain-fag. Indeed, in consequence of the large proportion of nitrogenous matter in the composition of fish, abounding as it does in brain and nerve-making elements, it is especially adapted for all those upon whom there are great demands for nervous energy, and is therefore useful in some cases of nervous exhaustion.

The quality of all fish is superior before spawning time, for it is then "in season;" young fish can always be eaten. Fish caught from the deep seas are better than those from shallow bays. Fresh water fish from deep, clear water, with a stony bottom, are better than those from muddy shallows. "What herring," says Dr. Davy, "is equal to that of Loch Fyne?—what haddock equal to that of the Bay of Dublin? Of fresh water fish, what a contrast there is between the lake trout and the brook trout!—the one well-fed, well-flavoured, of the colour of salmon; the other small, colourless, and insipid. What a contrast between either of these and the trout of bog water! the latter black, soft, ill-formed, and ill-tasted. What a contrast, again, between the trout inhabiting a stream in a fertile limestone district fed by springs, fluctuating little, and the indwellers of the mountain stream of a primitive country, subject to great fluctuations—one day a raging torrent, in a brief space run out and all but dried up! As with other animals, whether beast or bird, domestic or wild, much, we know, as to their quality, depends on their feed, its kind and quantity; and so with fish."

A sign of the freshness of fish is its firmness and rigidity. This is due to the *rigor mortis*, which passes off after a while. For the invalid it should always be *boiled* or *broiled in oil;* the fat added in *frying* renders the fish less digestible. Dried, salted, smoked, or pickled fish should not be seen in the sick-room. A little fresh fish, well boiled, served with bread and butter, without sauces and seasonings, may frequently tempt the fastidious, dainty appetite.

Salmon stands pre-eminent as a delicacy, and more nearly resembles the meat of animals than that of other fish; fat is intermixed with the muscular fibre, and underlies the skin, particularly of the abdomen; it is therefore rich—too rich for invalids; otherwise the nutritive value of its flesh to those who can take it differs but little from that of the red-blood flesh of other animals.

Mackerel, Herring, Pilchard, Sprat, and *Eel* are also fatty in their composition, and therefore less suitable than white fish for those whose powers of digestion are feeble. Amongst white fish are *Haddock, Whiting, Sole, Flounder, Cod, Turbot, Brill,* etc., whose flesh contains little fat, except in the liver. *Whiting,* the chicken of fish, is the most delicate and easy of digestion. *Sole* possesses the same excellence, and deserves its popularity in the sick-room. *Haddock* is firmer, not so delicate, nor so digestible. *Flounder* is tasteless, but also harmless. *Cod* is close, firm, tough, and indigestible by a weak stomach. Fried Cod is like veal cutlet, but drier. *Turbot* has richer flavour, but does not stand high as food for invalids. *Brill*, though inferior in flavour, is safer as food ; the skin of both, when boiled, appears to be gelatinous, but, though preferable as a delicacy for the healthy, is not suitable for the weak. The most delicate of all fish is probably the *Whitebait*, except it be rivalled by the fresh *Smelt;* but the accessories are not good for invalids.

Fish-broth contains nearly the same component parts as meat-broth, and in some countries fish-soups are as much esteemed as those of meat.

Isinglass, obtained from the air bladder of the sturgeon, is a valuable and nutritious vehicle for the administration of other ingredients of food, surpassing gelatine in value.

SHELL-FISH, with the exception of oysters, are less nutritive than other kinds of fish, less digestible, and more likely to disagree with weak stomachs than most kinds of animal food. In some persons they produce gastric irritation and disorders, and in others nettle-rash and similar eruptions. Indeed, so marked is this effect on some constitutions, that it is necessary to forbid shell-fish altogether.

Lobster and *Crab*, though very agreeable to many persons, are not suitable for those whose digestive organs are weak, and consequently should not be introduced into the sick-room. Indeed, some persons in ordinary health cannot take them, because they are not easily digested, even when stimulants of the gastric juice are added in the form of vinegar and pepper.

Prawns and *Shrimps* belong to the same family as the lobster, and are somewhat more readily digested, but they are not suitable for invalids.

Turtle soup is luxurious and rich, and, in small quantities at a time, is often very restorative to invalids.

Oysters are nutritious, and readily digested even by delicate stomachs. From recent researches it appears that they contain sufficient pepsine to be self-digestive. By invalids they should be taken without the fringe or beard (gills), and without the hard muscle by which the fish is attached to the shell; they should also be taken *raw*, and masticated before they are swallowed. To eat them with vinegar is to commit a dietetic mistake. It is a good plan to keep them alive for a day or two by placing them in a shallow dish of clear brine, feeding them with meal and changing the water, so that they may lie bare for a while, and then be flushed again twice a day, in imitation of the tide. They should only be eaten from May to September. As a means of conveying phosphates they are invaluable.

Fresh oysters are most grateful in chronic dyspepsia. where nausea is present, in the case of consumptives, for the trouble of morning sickness, in chronic diarrhœa; they can be eaten with advantage by the nursing mother, who will in this way not only strengthen her own system, but also that of the child at her breast. Convalescents from fever will find in the oyster a food both delicate and nourishing.

Oyster stew, prepared plain or with milk, or oyster essence made by slowly simmering oysters in their liquor or a little water until they swell, seasoning with salt, straining the liquor, and serving with dry toast or plain biscuits, are excellent methods of giving oysters.

Mussels and all other shell-fish, except oysters, are not suitable for invalids.

The flesh of *Rabbit* has some resemblance in general and nutritive character to that of poultry. It is somewhat loose in texture, without decided flavour, and is digested with ease. It may be eaten by the convalescent with due caution against unsuitable accessories and condiments.

The flesh of the *Hare* is of harder texture, of fuller flavour, and more stimulating nature than that of the rabbit. It is most nutritious; but as it is not very easily digested, it is a food for the healthy rather than for the sick.

EGGS, if the shell be included, contain everything that is necessary for the formation and maintenance of the body. This food does not, however, exist, as in milk, in a state of perfect solution, but in a semiliquid form; consequently some digestion is necessary before it can be assimilated. The white of the egg consists chiefly of albumen, without fat, and in a condition which admits of easy absorption, the ease being increased if it be shaken or beaten up with water. The yolk contains all the fat of the egg, held in suspension by some portion of albumen, and is therefore richer than the white. Raw and lightly boiled eggs are readily digested. It has been found that the yolk is more digestible when hard-boiled, while the white is least so. If the albumen be coagulated by the heat of cooking it becomes heavy and difficult of digestion, and sometimes produces Constipation or irritation of the bowels. It should therefore be particularly avoided by dyspeptics, and by persons recovering from illness, before the full powers of digestion have been regained. If the insoluble portions of hard-boiled eggs are delayed in the stomach and intestines, they putrify, and the sulphuretted hydrogen and ammonia evolved become irritating to the intestinal canal. But fresh uncooked eggs are almost wholly free from these objections. A fresh raw egg, thoroughly stirred into about half a pint of milk, forms, to most persons, a palatable and nourishing article of diet. One great advantage this preparation has over other food is that all the component parts are retained in their natural state, are more completely dissolved, and consequently make less demands upon weak digestive powers, than when the egg is eaten in its solidified form. If patients object to the taste of raw eggs, a little sugar may be added; or if this be not sufficient, some simple flavouring extract may be used. Wine or spirits are often employed, but they are usually objectionable, and should be dispensed with if possible.

Eggs seem to be particularly useful in lung diseases, and in cases of exhaustive cough seem to act as palliatives.

Artificial fibrin, so called, has been found available when no other food could be taken. It is thus prepared :—The white of an egg is poured into cold water and allowed to remain for twelve or more hours, during which time it undergoes a chemical change, becoming solid and insoluble, assuming an opaque, snow-white appearance. This and the liquid in which it is immersed are heated to the boiling-point, and the fibrin is ready for use. It is very easy to digest, and to many is quite a delicacy. It is said that the stomach will retain this in many cases when everything else is promptly rejected, its presence creating a craving for more food, and thus promoting instead of diminishing digestion.

Egg, with milk and sugar, forms a plain custard, which is often allowable and very grateful.

Eggs undergo change by being kept. The porous shell allows the evaporation of water and the infiltration of air ; certain organic changes also occur when the shell is rendered non-porous. To test the freshness of an egg an ounce of salt may be added to ten ounces or half a pint of water ; in this solution a fresh egg will just sink, one that has been kept for several days will float. A bad egg is often sufficiently light to float in pure water. Fresh eggs may also be known by holding them up to the light, when they will appear clear; if stale they will appear cloudy. Fresh eggs are most translucent in the centre, stale ones at the end. In order to preserve the freshness of eggs various plans have been adopted to render the shells non-porous or to exclude air; such as boiling them for half a minute, keeping them in lime water, bran, or salt, or covering them with a coating of wax, oil, butter, gum, or varnish; but with only variable success. No fusty egg is good for food, even when put into puddings; it should be banished from the house if there be the slightest smell of old straw about it.

Duck's eggs are larger and have a stronger flavour than hen's eggs; the solid matter and the oil in a duck's egg exceeds that of a hen's by as much as one-fourth. They are not often introduced into the sick room, but there is no reason why they should be excluded if the flavour be agreeable to the patient.

MILK.—Pure milk contains in solution, like eggs, all the elements required for the growth and sustenance of the body. This is especially true in relation to a child. Indeed, it may be regarded as the typical alimentary substance for it combines nitrogenous, fatty, saccharine, and mineral matters, and water, in such proportions as are required by the animal economy, and in such a state of mixture and liquefaction as to be easily assimilated. In fact, it requires no digestion, and it is this excellence which renders milk a most important and convenient article under many circumstances. It is already digested and prepared for absorption. In cases of fever, pure milk as the main article of diet is far superior to anything else, especially in Enteric and other fevers involving disturbance of the stomach and bowels. Beef tea, which is commonly used, is often irritating; but milk, on the contrary, is soothing, cooling, and at the same time nourishing and strengthening. In chronic disorders of the stomach and bowels a milk diet is a most valuable accessory to medical treatment. It allows the stomach to have almost absolute rest, which in many cases is all that is required. And this quiescent condition can be prolonged almost indefinitely, since an adult can be sustained for days or even weeks on milk alone. It should, however, be observed that milk would not be suitable diet for adults in health, as the nitrogenous matter is in considerable excess in relation to the carbonaceous. It is suited to young persons who have to grow, and who in order to grow must appropriate an excess of what is nitrogenous to form a daily addition to the body. On the other hand, it is not so suitable for full-grown persons, who have not so much to form tissue as to develop heat or other force by the combustion of carbon.

It must not be overlooked that the several elements or constituents of milk vary in quantity and proportion in different animals, and under different circumstances in the same animal. Variations are exhibited in the following table, which should be regarded as showing average rather than actual proportions, inasmuch as the milk of each animal is not uniform :—

	Woman.	Cow.	Goat.	Sheep.	Ass.	Mare.
Nitrogenous matter and insoluble salts	3·35	4·55	4·50	7·00	1·70	1·62
Butter	3·34	3 70	4·10	6 50	1·40	0·20
Lactine and soluble salts ...	3 77	5·35	5·80	4·50	6·40	8·75
Water	89·54	86·40	85·60	82·00	90·50	89·43
	100·00	100·00	100·00	100·00	100·00	100·00

The "nitrogenous matter" is chiefly caseine, which forms curd and cheese; the "lactine" is a form of sugar.

Woman's milk is, of course, the standard. Cow's milk more nearly approximates to it than that of any other animal, and hence is most generally used. Cow's milk contains considerably more casein, less sugar, and a little more butter than woman's milk; consequently when the former is substituted for the latter it should be largely diluted with water and receive a little sugar. Goat's milk is richer than cow's; sheep's milk still richer. Ass's or mare's milk is much poorer, but much sweeter. Indeed, so large is the proportion of sugar of milk in the last that it is fermented and converted into a spirituous liquor, known by the name of *koumiss*, and successfully administered in many cases of Consumption, chronic Bronchitis, and chronic Diarrhœa.

Cow's milk varies very much in quality. After parturition takes place in any animal the first fluid secreted differs considerably from ordinary milk, and is termed *colostrum;* consequently cow's milk, for three or four weeks after calving, is not fit for food ; it has a somewhat sickly smell, and acts as a purgative.

The milk of the Alderney cow is characterized by its richness in butter, that of the long-horns by its richness in caseine. The product of young cows is preferable to that of old ones, and as a food for infants the age of the secretion should be less than that of the baby; that is to say a cow with a calf two months old may do very well to feed a child of four months. The milk first drawn from the cow contains less cream than that which is last drawn; indeed (especially if some time has elapsed between the time of milking), the amount of cream in the latter may be two or three times as much as in the former. The milk of the afternoon is richer both in caseine and butter than that of the morning. The food on which the cow is fed considerably affects the quality of the milk ; poor diet impoverishes it ; strong vegetables, such as turnips, cabbages, and onions, flavour it ; decayed leaves make it disagreeable; poisonous plants render it injurious ; nothing is equal to the fresh pasture of country fields for securing good milk.

Its quality may be tested by the amount of cream it produces, by its weight, and by its specific gravity. The larger the proportion of cream, the better the milk. A quart of new milk, cooled, should weigh about 2 lbs. 2¼ oz. if it is of fair average quality. The sp. gr. of good genuine milk ranges from 1·026 to 1·030 at a temperature of 60°. The addition of water or an excess of cream lowers the sp. gr. But whether or not the milk be diluted with water, it is not unfrequently rendered unwholesome by being put into vessels that have not been cleansed by thorough washing out with soda. On stale milk, even in minute quantities, a small blue fungus, or mould, very speedily forms, which soon spreads to fresh milk and causes it to turn sour; hence Colic, Diarrhœa, and Thrush are occasioned in those who partake of it.

Fifteen grains of bicarbonate of soda to a quart of milk prevents it from turning sour, and also renders it more digestible.

Milk, though nourishing, does not agree with every one. If diluted with one-third lime-water, it will rarely cause biliousness or indigestion, and if taken regularly will so strengthen the system as to banish these disorders. It may be taken with acid of some kind when it does not easily digest. The idea that milk must not be eaten with pickles is not an intelligent one, as milk curdles as soon as it is swallowed. When milk is constipating a little salt sprinkled in each glassful will avert the difficulty. When it has an opposite effect, a few drops of brandy in each tumbler of milk will obviate purgation. It is a mistake to drink milk between meals or with other food. In the former case it will destroy the appetite, in the latter it is not proper to drink anything. After finishing a meal a tumbler of pure milk may be drunk, and half a pint taken at bedtime with a biscuit makes a light supper. In cases of fever, in exhausted conditions dependent on loss of blood, and in summer diarrhœa and other inflammatory affections of the alimentary tract, it may be given scalded with excellent results; it is a sheet anchor in Enteric Fever. Owing to outbreaks of fever which were traced to infected milk, many persons adopted the precaution of boiling all milk before using it, and thus the disease-germs which it may have contained were rendered innocuous. This is a good plan for persons resident in towns. But when used as a substitute for mother's milk, cow's milk should not be boiled, but only raised to the temperature of breast milk by the addition of warm water.

Cream is composed of the fatty constituent of milk, which, on account of its lightness, rises to the surface when the milk is allowed to stand. It forms the basis of butter. It can often be taken freely when nothing else will remain on the stomach, notwithstanding the abundance of fatty matter. It should always be fresh, and may be diluted with water or given pure if desired. *Clotted cream* is produced by heating milk just to the point of simmering, which causes a scum to form with the fatty matter and give it more consistence.

Skim-milk is that from which the cream has been removed, and being consequently less rich than ordinary milk, it can frequently be taken by invalids when the latter cannot.

Butter-milk is what is left after the extraction of butter. It of course contains less fatty matter than skim-milk, but it retains the nitrogenous, saccharine, and saline matter, and is therefore very nourishing and useful as an article of diet. Unless very fresh it is generally a little acid. It is one of the most refreshing summer drinks that can be taken, and is almost always allowable in sickness, especially in fevers with gastric symptoms. It appears to produce a gentle activity of the liver and kidneys, particularly of the latter organs.

Curds are the caseine and fat of milk combined by coagulation of the milk. They form the basis of cheese. The addition of an acid to the milk sets free the caseine which is held in solution by an alkali, and causes coagulation.

Whey is the residuary liquid after the curd has been removed, containing little of the caseine and fat, but all the sugar and salts of milk. The caseine and fat being absent, there is no fear of curdling in the stomach, and thus causing pain or Diarrhœa. Whey can, therefore, be taken by many persons with whom milk disagrees. It is not very valuable as nutriment, but it is very digestible, is easily absorbed, and is a refreshing drink in the sick room, especially in inflammatory disorders. A slight flavour of nutmeg makes it very palatable. There is a prevailing opinion that whey is sudorific; hence wine-whey, alum-whey, tamarind-whey, etc., when the milk has been curdled by these substances, are recommended. The method of preparation is given in a succeeding chapter.

In Switzerland whey is supposed to have medicinal virtues, particularly for the relief of chronic disorders of the abdominal organs, the treatment which is known as the *Molken-kur* has a fashionable reputation.

Condensed Milk is milk preserved by the evaporation of a large proportion of its water, and the addition of cane sugar. It is sold in hermetically-sealed tins, in which it can be kept for several years; when the tins are opened it is found in the form of syrup, which will remain good for several days. It is very useful for the diet of invalids in the making of light puddings, or other food into which milk largely enters. It requires the addition of a considerable quantity of soft water (three parts water to one part milk) to replace what has been evaporated. Being already sweetened, it needs no addition of sugar. Its sweetness renders it very agreeable to infants, who take it readily, grow plump, and apparently thrive well upon it.

Koumiss, which is fermented mare's or cow's milk, has been found very useful in some cases of consumption. The Russian plan of making it is as follows:—Two teacupfuls of wheat-flour are mixed with one spoonful of honey, one of good beer yeast, and sufficient milk to form a not too thin paste; the whole is put in a moderately warm place to ferment. When fermentation takes place the ferment is put in a linen bag, and hung in a jar or keg containing sixteen pounds of fresh mare's milk, covered and allowed to stand till the milk has acquired a pleasant acidulous taste (about 16 to 24 hours, according to the temperature). The butter and cheese particles which float about are now skimmed off, the liquid is poured into another keg and shaken for one hour, after which time it is poured into bottles, corked and put into the cellar. A "cure" requires twelve to fifteen pounds of milk daily the produce of two mares; the best season for it is from May to July. The koumiss is taken early in the morning, every hour (a teacupful to a tumblerful at a time), and plenty of exercise must follow.

BUTTER is the fatty portion of milk, obtained by churning the cream or the entire milk. This operation causes the rupture of the envelopes of the fat globules, which then coalesce and become incorporated into a solid mass. Milk yields on an average 5½ per cent. of butter. Though butter is generally churned from cream, it would be produced in greater quantity from entire milk; but as the substitution of milk would necessitate more labour and the use of larger vessels, it has not been generally adopted. The churning of cream is best performed at a temperature varying from 50° to 55°, and the temperature is generally regulated by placing hot or cold water according to the season in the outer vessel. Milk requires a temperature of 60°. When the butter is formed it should be kneaded and washed with water to remove the caseine, fatty acids, and other ingredients which would prevent its keeping sweet and fresh. Salt is added to preserve it. If syrup be added instead of salt, or sugar with which is mixed a little salt, butter is said to keep better. The exclusion of air also preserves it, and simply covering it with water renewed every day will keep it fresh for a week. But a better plan is that of M. Bréon, who adds water slightly acidulated with acetic or tartaric acid, and places the whole in a closely fitting vessel.

When pure and fresh, butter is more easily assimilated by delicate stomachs than most other fats. It is also the form of separate fat which is less frequently disliked by consumptive people and invalids generally; but it should not be too bountifully supplied. Butter that has become stale or rancid, or been exposed to heat (as for buttered toast), is very likely to disagree with dyspeptics and other invalids, and cause Diarrhœa. Indeed, as a rule, all kinds of decomposing fats disagree with the stomach. There are ready means of detection through the senses of sight, taste, and smell, when butter is adulterated. Pure butter should be of a uniform rich yellow appearance; when a streaky look is imparted by quickly passing over it a clean knife the presence of adulterants is always to be suspected. When melted it should yield a clear-looking oil, with but slight deposit of water or other substances.

When placed on the tongue it melts quickly and leaves the tongue perfectly smooth; while, on the contrary, there will be a sense of roughness, a granular taste, and the peculiar flavour of the adulterant, as the results of this test when butter is adulterated. The odour of butter is very persistent, and therefore does not so well mark its purity or the reverse.

Cheese is the nitrogenous portion (caseine) of milk, with a proportion of fatty matter, obtained by coagulation into curd by means of rennet or vinegar. The curd is subjected to pressure in a mould of the future form of the cheese in order to remove the whey. When sufficient consistence has been secured the cheese is exposed in a cool, airy situation to dry and ripen. During this process both caseine and butter undergo change, volatile fatty acids are produced, flavour is developed, and in some cases fungi are formed. The rich and soft quality of the cheese depends on the amount of fatty matter in the milk from which the cheese is made: the richer cheeses are formed by the addition of an extra quantity of cream; the poorer cheeses are made from skim-milk. Poor close cheeses keep the best.

As cheese is rich in nitrogenous matter, it stands very high in the scale of nutritious food; one pound being equivalent to three and a half pounds of lean beef. Taken with bread or other vegetable diet it is very nutritive to persons of active habits. As a relish or condiment it stimulates digestion. But on the whole it is not very digestible, and therefore not suitable for persons of sedentary habits, or for invalids, especially at bedtime. The close poor cheeses are less easily assimilated than the soft, friable, and strongly flavoured, but they may be rendered wholesome by being cut in very thin slices and buttered. Toasted cheese is also digestible by a healthy stomach, if it is new and lightly cooked with cream and butter ;but as ordinarily prepared it is one of the most indigestible articles that can be eaten.

Cream cheese is fresh curd moderately pressed; it must be eaten fresh, as it will not bear keeping long. It is more digestible than ordinary cheese, because it is softer and may be readily masticated, and because it has a less proportion of caseine. To many invalids it will prove a pleasant variation with other diet.

Lard, which is derived from the loose fat of the pig, is a very pure fat; but it is so tasteless as to be seldom eaten except in pastry, or as the medium in which substances may be fried.

Dripping, derived from roasting joints, if not burnt, is one of the most nutritious forms of fat and very agreeable. Its flavour depends on the degree to which the flesh is roasted. It may sometimes prove a welcome alternative to butter in the sick-room. Salt should be eaten with it. But it must be taken in moderation, and its action watched, or it will disorder the stomach and heighten fever.

CHAPTER IV.

VEGETABLE FOOD.

VEGETABLE products enter largely into the food of man. Even the more common articles of food in this class present considerable variety. They are consumed in the form of seeds, roots, leaves, herbs, and preparations of different kinds.

Farinaceous seeds form the largest portion of our vegetable food, and are the most extensively used; they are of great nutritive value, of easy digestion, plentifully yielded, and universally grown.

Cereals hold the first place. The general composition of all of them is very similar, but on account of the differences that exist in the proportions of their component elements they have different nutritive values. Even the various kinds of wheat are not exactly alike, especially in the relative proportions of nitrogenous matter and starch. On an average, wheat contains more nitrogenous matter than other grains. Oats come nearest to wheat in this respect, and are of equal value to many wheats; they also contain a large proportion of fats and salts. Maize is rich in fatty matter, moderately so in nitrogenous, but poor in salts. Rice is very rich in starch, but poor in other constituents.

The constituents of *Wheat* more nearly correspond with the requirements of the human system under ordinary circumstances than any other grain; and life and health can be maintained on wheat alone for an indefinite period, provided there be an adequate supply of good water and air. Hence it is one of the most widely cultivated of the cereals.

As it is ordinarily used, however, it is deprived of much of its nutritive value, for the portion which contains the largest amount of nitrogenous matter is removed in order to meet the demand for whiteness in the bread. Each grain, after being thrashed out of the straw and winnowed from the husks, is composed of a hard, thin outer coat, or bran, a soft, friable intermediate layer of cells, and a central white substance chiefly composed of starch. The outer coat is woody, indigestible, useless for nutrition, and irritating to the alimentary canal. In some cases it may therefore be advisable to retain it to act mechanically to stimulate the action of the intestines in constipation; but when used by persons who take active exercise it is too stimulating, for it causes the food to pass hurriedly through the canal before the process of disintegration and assimilation is completed. For invalids, and persons whose digestive organs are in a state of susceptibility, it is too irritating. The inner coat is of most value. It is usually removed with the outer coat in dressing the flour. But it is the richest part of the grain in nitrogenous matter, fats, and salts, the part which contains food for muscles, bones, and brains; and the more thoroughly this is removed, the finer the flour is dressed, the whiter the bread produced, the less valuable is the bread for nutrition. The central white material of the grain is chiefly composed of starch, but it comprises also a proportion of the more nourishing elements, though the proportion is so small that the utility of the grain is sacrificed to the appearance of the bread. Many writers—notably Liebig—have pointed out the waste of nutritive material, and the unwisdom of preferring white bread to that which contains the nitrogenous portion. Pavy, however, reminds us that bread is not our only food; that what is rejected in the bread is taken in other forms; and that through animal diet we receive the very elements which have been eliminated from the flour. Certainly to most persons the white bread is more palatable, and presents a more pleasing appearance, than the more nutritious bread, but the taste is probably a matter of habit. If it were not that it gave a dark colour and a soft consistence to bread, a very important soluble nitrogenous matter called *cerealine* might be utilized by soaking the bran in warm water for some time, and using the water in the preparation of the dough for bread. It would be better to sacrifice the appearance and cultivate another taste, if thereby more nutriment could be obtained. Young and growing children are great but unconscious sufferers from the common custom. Many are weak from malnutrition, grow up with defective teeth and bones, weak tissues, inadequate muscular development, and are susceptible to diseases which they have not constitutional strength enough to combat and resist.

Bread made with sea water is said to increase the appetite and stimulate digestion. It is pleasant to eat, and exercises a beneficial influence in Dyspepsia, Phthisis, and Scrofula. It has also been found conducive to health on board ship during long voyages.

Stale bread is preferable to new, especially where there is any weakness of the digestive organs, for the softness of new bread renders it less easy of mastication and insalivation, more clammy and cohesive, and therefore less penetrable by the gastric juice. In the stomach it often ferments afresh, and even in persons of good digestion produces heartburn. Stale bread is firm and more friable under the action of the teeth, and more easily penetrated by the digestive juices, than new bread. It is generally the most digestible one or two days after it has been baked. The best bread grows stale most slowly.

Aërated bread, made by forcing pure carbonic acid into the dough, keeps better than other kinds, is free from remains of yeast, does not induce the fermentative changes in the stomach, which cause Dyspepsia, flatulence, and heartburn, and is more likely to be wholesome than ordinary baker's bread.

Sour bread and mouldy bread are unwholesome, and may produce injurious and even fatal consequences. As bread is poor in fat and salts (when only white flour is used), the common practice of eating butter, bacon, dripping, or other fat with it is, therefore, more than the gratification of a taste, it is a physiological necessity.

Toasting bread greatly increases its digestibility, provided the process be properly carried out. To cut the bread into slices so thick that while the sides are rendered crisp the interior becomes spongy, and then to soak the whole with butter, is to render toast very indigestible. The slice should be toasted brown, not burnt, so that it may be crisp and firm throughout. It then constitutes the best form in which starchy food can be given ; for much of the starch is changed into glucose by the heat, and in wheat bread there is some little gluten, which partly supplies the place of albumen. If toast is buttered, the butter should be applied as the toast is eaten, so that it may not become soaked with the butter. By some it is much enjoyed without butter, and is then more readily digested. *Toast water*, when properly prepared, forms an almost indispensable article in the sick-room. If good stale bread or biscuits are nicely toasted, not burnt, and then placed in a dish or jug, and hot water poured on and allowed to cool, the drink will often prove more palatable than water alone.

Rusks, tops and bottoms, and *pulled bread* are forms of toast. Rusks are made of flour, butter, milk, eggs, and sugar, baked and dried. Pulled bread consists of the interior only of a new loaf from which the crust is stripped, dried and browned in a quick oven, and constitutes a suitable form of bread for those whose digestion is weak.

Biscuits and *rusks*, on account of having been dried, are not likely to become mouldy and unwholesome, Biscuits have this further recommendation, that as they contain little water, they are, bulk for bulk, more nutritious than bread, three quarters of a pound being about equal to a pound of bread. Those made without butter are sometimes not easily digested, and patients soon tire of them from lack of variety.

Wheaten biscuits, either sweet or plain, are made of whole wheat finely ground for the purpose, and are most suitable for those who suffer from Dyspepsia and constipation. They are not cloying and indigestible, like brown bread new, nor dry and husky, like brown bread stale, but are sweet and agreeable to the palate. They may be used either at tea and breakfast or with meat at dinner, as the consumer pleases, and in such quantities as may be requisite.

Biscuit powder, made from captain's, or ship biscuits, which consist of flour and water only, and prepared with milk, can be sometimes taken by invalids who cannot bear solid food. It is also suitable for infants.

Cracknels are light, and easily digested.

Sponge cakes are also light, and often tempting. They may be soaked in hot milk ; as also may rusks and cracknels.

Muffins and *Crumpets* are very indigestible.

Gingerbread, when dry, crisp, and light, is acceptable to many dyspeptics.

Macaroni and *Vermicelli* are very nutritious, but not easily digested on account of the closeness of their texture.

Semolina is made from the inner part of the wheat grain, is nourishing and digestible, and is useful for puddings, or to thicken soups, broth, or milk.

Oats, when ground, form a flour which is not so white as wheaten flour, and when made into bread has a peculiar taste, half sweet, half bitter. The Scotch oatmeal is coarser than the English, and is generally preferred for its flavour and for its nutritive qualities. On account of the large proportion of fats and salts contained in them, oats form a very nutritious food. When deprived of their covering, oats are known as *groats* or *grits*; when crushed, they are sold as Emden groats — the form best adapted for gruel. Groats and milk furnish perfect nourishment, even for an adult. Oatcake bread in large thin flakes is a common article of diet in Scotland, and in some parts of the north of England. *Porridge* is a hasty pudding of boiled oatmeal. The oatmeal should be mixed, at first very thin, in boiling water or milk; while boiling, the meal should be sprinkled slowly on the surface and stirred in; when enough is added, the whole should simmer for half an hour or longer, with an occasional stir. "If, however, the oatmeal be imperfectly boiled, as when prepared in haste or intentionally unboiled, as in Scotch 'brose,' it is extremely indigestible, and produces obstinate pyrosis and flatulence; but if well boiled, and eaten slowly so as to become thoroughly mixed with saliva, it is most wholesome." *Gruel* is a similar preparation, taken in a more liquid form. It should be boiled until every particle of the meal is cooked. It may be made with milk instead of water, or part water and part milk, and is generally better if strained, as the straining removes the irritating husks of the grain. Gruel appears to have been a favourite morning beverage some two hundred years ago, for water gruel was advertised as always ready at the Marine Coffee-house in Birchin Lane, Cornhill, every morning from six to eleven o'clock, where as much as four to five gallons were drunk daily. This is a more innocent "pick-me-up" than that which finds favour with City men of the present day.

In the north of Germany *oatmeal soup* mixed with fruit is a favourite dish, the fruit greatly augmenting the nutritious value of the oatmeal. In Ireland oatmeal is mixed with Indian corn meal, and then stirred into boiling water, forming a compound called *stirabout;* whey and milk are often used instead of water. The mixture should be well boiled to avoid flatulence.

In Scotland the oatmeal husks (called seeds) are sometimes steeped in water for a few days, until they become rather sour, like stale brewers' grains. When afterwards squeezed out they produce a liquid which, when boiled to the consistence of gruel, or thickened with a little oatmeal, makes the food which the Scotch call *flummery*, or *sowans*, and the Welsh *sucan.* It is usually eaten with milk. If it be boiled still more, until it becomes as thick as jelly, it forms what the Welsh call *budrum*, or *brwchan.*

Oatmeal in all its forms is somewhat laxative, and often causes irritation of the bowels, especially if not sufficiently cooked. There are some persons who cannot take it on account of the acidity and eructation which it causes.

Barley is not so much employed as it used to be in the form of bread. When it is made up, some wheaten flour is mixed with the meal to make it less compact and heavy, more spongy and light. It is, however, less palatable than wheaten bread, less digestible, and is scarcely suitable for weak and disordered stomachs. The best way of using barley flour is to take it in the form of gruel or stirabout, made by gradually sprinkling and stirring the meal into boiling water. The nutritive value of barley meal is somewhat inferior to that of wheaten flour; but as the meal is cheaper than flour it is more economical to use it: in fact, it is almost the cheapest article of diet.

Scotch barley is the grain deprived of its husks. *Pearl barley* is also the grain deprived of its husks, and rounded and polished by attrition. Both are employed to give consistence to broth. *Patent barley* is pearl barley ground into flour. *Barley water* is made from pearl barley, and forms a slightly nutritive, bland and demulcent drink for invalids. It is made by taking about two ounces of pearl barley which has been well washed in cold water, and boiling it in a pint and a half of water for half an hour.

Malt is barley changed in process of manufacture, so that a peculiar active nitrogenous principle, called *se*, is developed, which has the power of converting starch into dextrine and sugar. *An infusion of malt* is made by boiling four tablespoonfuls of ground malt in a pint of water for ten minutes. The liquid is poured off, diluted one-half with milk or given pure. It is very agreeable and nutritious, and is often beneficial in some cases of Cholera infantum, when other things are rejected. Malt is one of the ingredients in Liebig's Food for Infants.

Rye is more like wheat than other cereals in its fitness for making bread. It was once commonly employed in this country, and is now used by the poorer classes on the Continent, where agriculture is in a low condition ; but it is not so nutritious as wheaten bread, while its colour and acidity render it distasteful to those who can obtain the flour of wheat. It possesses laxative properties.

Indian Corn, or *Maize*, is not adapted for the manufacture of bread on account of its deficiency in gluten, unless wheat or rye flour be mixed with it. The meal is cooked by either baking it in cakes or by stirring it into boiling water or boiling milk as with oatmeal, by which a thick porridge is made. It is thus commonly used in Ireland, with a flavouring of salt, butter, or treacle. It is not agreeable to the taste of most persons, as it possesses some degree of harshness ; this may, however, be removed by the application of a weak solution of caustic soda. But this treatment renders it less nutritious by the removal of some portion of the nitrogenous elements. Thus prepared, it is sold as *corn flour*, *Oswego*, and

Maizena. The large proportion of fatty matter, nevertheless, renders it very nutritious.

Rice is said to be the food of nearly one-third of the human race. The best imported into this country comes from Carolina and Patna, the former to be preferred for puddings, the latter as a vegetable with meat, or as a side dish with preserves. It is useful as an article of diet, whether whole or ground into flour. It, however, requires the addition of some fat to make up for its deficiency in this ingredient. It should be thoroughly cooked, whether the grains be ground or remain whole. In India rice is never prepared alone, but always with the addition of a certain pulse which abounds in albuminates ; ghee (butter clarified by boiling) is also largely consumed with it. Boiled or baked with milk and egg, as rice pudding, it forms a substantial meal, and is especially suitable for invalids, as it does not make great demand on the digestive powers. Rice boiled five or six hours forms, on cooling, and after the water has been strained off, a jelly which is soluble in warm milk, and makes a pleasant change of diet. Rice Water is made by washing an ounce of good rice in cold water, then macerating it for three hours in a quart of water kept at a tepid heat, and afterwards boiling it slowly for an hour.

Rice water is very useful as a drink in all irritable states of the alimentary tract, as in Dysentery and Diarrhœa. Indeed, it has been known to arrest the latter without the employment of any medicinal measures.

Of the various *farinaceous preparations* adapted to the digestive powers of infants, dyspeptics, and invalids generally, Neave's, Ridge's, and Hard's take the lead, and each of these has its recommendations. Our own experience, extending over many years, leads us to give the preference to Neave's so long as it is obtained *fresh* and in good condition. It has been analysed at different times by the highest authorities, and found to contain in an easily digestible form all the ingredients requisite for the formation of flesh, fat, and bone, and for the maintenance of animal heat. It contains the gluten and salts in which corn flour is deficient. It makes excellent gruel, and is admirably adapted for infants in the transition stage between an entire milk diet and ordinary food. For young infants, and for children suffering from Diarrhœa, Indigestion, Constipation, Flatulence, Atrophy, or Aphthæ, corn flour and similar preparations are very unsuitable. In all cases, foods which contain traces of bran, and also gluten, gum, sugar, cellulose, and saline matter, especially the phosphates, in proportion to the starch, are to be preferred.

Passing now to the *products* of the *kitchen garden*, Dr. Chambers has classified them according to the chief purposes they subserve in the animal economy. The place of each plant in the class indicates its average value: for instance, the potato stands first in value for its starch, cabbage as an anti-scorbutic. The classification is useful as indicating what should be eaten or avoided in certain diseased states of the system.

1. *Starchy and Sugary Plants.*—Potatoes, yams, chestnuts, beans, lentils, peas, Jerusalem artichokes, carrots, parsnips, beetroot, salsafy, turnips. Each of these is a force-giver, but each may be unsuitable for food in some disordered conditions.

2. *Stimulants.*—Asparagus, wild onions, artichokes, strong onions, garlic, aromatic herbs, mustard, cress, and a few other pungent salad materials. These cause increased secretion of saliva and gastric juice, and thus promote the digestion of a larger quantity of food than could be otherwise dissolved.

3. *Anti-scorbutics.*—Cabbages, tomatoes, and salad materials in general. These products contribute valuable saline materials to the blood; but they should be quite fresh, or they will cause indigestion, and scrupulously clean, otherwise they will be the instruments of introducing the ova of worms into the system.

4. *Diluents.* — Cabbages, spinach, turnip-tops, winter greens, broccoli, cauliflower, Brussels sprouts, sorrel, nettle-tops, or any leaves sufficiently palatable to eat and soft to swallow, and which are green when boiled. The chief use of these diluents—or perhaps they might as appropriately be called disintegrants—appears to be, not to contribute actual nutriment, but, by being mixed up in the stomach with nitrogenous food, to render it more thoroughly open to the action of the digestive secretions, and more easily available for absorption by the intestinal glands. Like gelatine, though apparently not nutritious in themselves, they make other things nutritious.

Leguminous Seeds, or *Pulses*, are characterized by the large proportion of nitrogenous matter they contain ; indeed, they surpass the cereals in this respect, some of them containing twice as much as ordinary wheat. The form in which the nitrogenous matter is present is chiefly that known as *legumine*, the representative of caseine. Pulses possess a high nutritive value on account of their nitrogenous character, but should be eaten with starchy food, as rice, or with fatty food, as bacon. They are very satisfying, more so than vegetable diet generally. There is this disadvantage, however, attending their use, that they are not easily digested, and must be boiled for a long time to render them amenable to the gastric juice ; they also occasion flatulence and colic, the eructations having a strong, disagreeable flavour of sulphuretted hydrogen, due to the sulphur which they contain; further, they are heating to the system.

Broad, or *Windsor Beans* are used as a vegetable without the pods, the seeds being eaten in their green state. They are also dried and preserved while still green, so as to be always available. *French Beans* and *Scarlet Runners* are eaten with the pods before they are ripe. On the Continent the seeds are allowed to ripen, and, when stripped from the pods and husks, are sold as *haricot beans*. *Peas* are consumed while yet young, without their pods, and form a very delicate and nutritious vegetable if they are so young that the skins crack in boiling and are quite tender. Unbroken skins become harder the longer they are boiled, and are very indigestible. Old peas should be treated as dried peas—soaked, stewed, and crushed—if they are to be rendered palatable and digestible. Dried peas, split peas, without skins, if well boiled, are excellent food for healthy persons. *Peas-bannocks*, or cakes made from the meal, are a favourite food, with fat and milk, in the south-east of Scotland; and in England peas, with fat bacon or butter, have been eaten for generations.

Revalenta and *Ervalenta* are fancy preparations of lentil flour, with a mixture of barley flour, cocoa, or other ingredients. They are rich in nitrogenous matter, but less digestible than preparations from wheat, barley, and oats. Lentil flour makes excellent soup, the flavour (if objectionable) being disguised by the addition of sugar, Indian corn flour, barley meal, a little celery or asparagus.

The *Spanish Chestnut* contains a large proportion of starch, a considerable quantity of sugar, but little or no oil; when uncooked, is very indigestible; when roasted or boiled, can only be wisely taken by those whose digestive powers are in good order. The *Walnut* contains oil; so also does the *Hazel nut*, whether the variety be the *filbert*, *cob-nut*, or *Barcelona nut;* the *Brazil* nut is very rich in oil; the *Cocoa-nut* contains about 70 per cent. of a fixed fat, which is extracted and used under the name of cocoa-nut oil or butter. All these nuts are highly nutritious on account of the albumen and caseine they contain, but they are not easily digested on account of the large proportion of fat. They should be taken in extreme moderation, at a time when the stomach has had some rest, and can employ its powers for their digestion. They should be very thoroughly masticated, so that the saliva may act freely throughout the mass; they may then be taken by those whose digestion is good, but must be avoided by invalids. Under exposure to air the constituent oil is liable to turn rancid.

Almonds are of two kinds. The *bitter* almond contains elements which, when brought into contact with water, develops poisonous products, and consequently, when employed for flavouring puddings, cakes, and liqueurs, has proved injurious, and even fatal. The *sweet* almond is innocuous. On account of its irritating qualities the skin should be removed by soaking the almond in warm water before the kernel is eaten; this may then be taken by those whose digestion is good. If it be baked for a little while it may be easily broken and pulverised, and thus rendered more digestible. Dr. Pavy has suggested that biscuits be made of almond flour for use in Diabetes, and indeed, where they can be borne, in all cases of defective nutrition, on account of its richness in nitrogenous and fatty elements.

Starch is also an important alimentary product, found only in the vegetable kingdom; but there it is very extensively distributed. As an article of diet it is useful in the formation of fat and force; but is devoid of nitrogen. It has this recommendation, that it allays the sense of emptiness and hunger when other food cannot be taken. But the granules are covered with a hard envelope which renders them difficult of digestion, unless the envelope be burst by the action of heat. If then they be eaten uncooked they pass through the canal without yielding up their nutritive properties. If, however, they be boiled, the envelopes are ruptured, and the contents are easily transformed, either by the saliva or the intestinal juices, into sugar, and are thus easily assimilated through the mucous membranes. All preparations of starch should therefore be cooked before they are eaten, by stirring them into boiling water or boiling milk, and then letting them simmer for a few minutes. If they be prepared with milk instead of water, wine should not be added.

Sago, prepared from the pith of a species of palm, is useful for thickening soups, and making light puddings, which with the addition of milk form a light and easily digested diet for the invalid.

Tapioca, prepared from the root of the cassava, is similarly employed and similarly useful.

Tapioca jelly makes an allowable and pleasant dish. The tapioca should be soaked in cold water for several hours, and then cooked until perfectly clear, adding more water if necessary. When done, sweeten to taste, and flavour with vanilla, lemon, or wine, and when cold eat plain or with cream.

Arrowroot possesses little nutritive value and little sustaining power; its chief merit is that it is bland and easily taken; but some other alimentary substance should be added to it. The true arrowroots

(Bermuda, Jamaica, and West Indian) are to be preferred for the sick-room, for they will often remain on the stomach of an invalid when the others will be rejected.

Tous-les-mois may be employed in the same way as arrowroot.

We come now to a class of vegetable products containing a large proportion of water, which makes them succulent, of these the potato takes the lead in importance and dietetic value.

Potatoes are an agreeable and wholesome article of food, easily cultivated, easily kept, easily cooked, not always easily digested, but the taste of which one is not soon tired. They also have the recommendation of being anti-scorbutic. In this quality cabbages take the first place, and all succulent vegetables share, but potatoes have been proved repeatedly to produce a most beneficial effect in the prevention and cure of scurvy.

The proportion of starchy constituents is large, and of nitrogenous elements small, so that it is desirable to eat with them some other food to supply the deficiency in nitrogen, such as meat, fish, bacon, buttermilk, etc., in order that a fully nutritious diet may be supplied. When cooked the heat employed coagulates the albumen, the starch granules absorb the watery particles, swell, and burst their cells, and thus the mass is broken down into a loose, floury, or mealy condition. If, however, the absorption is incomplete, and the rupture of cells imperfect, the mass remains coherent, firm, and waxy. In the former state the potato may be easily digested, in the latter it is difficult of digestion. Young potatoes being close and firm are very indigestible, but old waxy potatoes are more so.

Preparation for the Table.—The best method of cooking potatoes, certainly from September to June, is by steaming them in the skin ; by this process heat penetrates everywhere, and there is no loss of material and salts. For this purpose a saucepan, one-fourth full of boiling water, is required, into which a closely fitting steamer is placed, containing the potatoes, the latter being so packed as to allow a free passage for the steam. If the potatoes are boiled, the skins should not be previously removed, or a large amount of salts will pass out.* The addition of common table salt to the water is advantageous, for it helps to retain the natural salts. The boiling should be thorough, otherwise the starchy grains are undigested. From twenty-five to thirty-five minutes is the time usually required, according to the kind of potato boiled. Potatoes should be served up immediately they are cooked, and not, as is too frequently the case, placed over the fire at half-past eleven or twelve for a one o'clock dinner. Towards the end of the season, old potatoes are improved by being peeled overnight and put into cold water, by which process they regain, in a measure, their natural colour and consistency. Potatoes are rendered more digestible by being finally mashed, and mixed with a little red gravy as it runs from the cut surface of a joint.

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* Dr. Letheby estimates the waste when the skins are removed at 14 per cent., when not removed at only 3 per cent.

Roasted potatoes are more nutritious than boiled. *Potato soup* is rendered more nutritious by the addition of peas, and potato food by being mixed with cheese and curds.

Potatoes are spoiled by germination or growing, and by frost; severe frost almost invariably kills them, so that when the thaw comes the process of putrefaction immediately sets in.

Choice of Potatoes.—They should be large and firm to the touch, should present no evidence of disease or fungi, should not have been exposed to frost, neither should they be germinating or growing, for then the starch is undergoing a saccharine metamorphosis. Further, when cooked they should not be close, watery, or waxy; but floury or mealy. The best sorts are the Kent, York, and Scotch regents, the fortyfold, and the fluke. The regent is a round, rough-skinned potato; the fortyfold has a pinkish skin, and is extremely white and mealy; the fluke, though a great favourite, is close at one end, and sometimes turns black when cooked.

The *Jerusalem Artichoke* is somewhat similar to the potato, but does not become mealy when boiled. It is devoid of starch, but contains a considerable proportion of sugar; it therefore does not become friable, but is sweeter than the potato. It is not largely used as an article of diet, though it has the recommendation that it can be kept in the ground through the winter, and dug up when required, without injury from frost. It is not very nutritious, nor very digestible; it should therefore only be eaten as an occasional change on account of the flavour.

Carrots make a pleasant change in one's vegetable fare, but are apt in some cases to produce flatulence. The less they have of the central yellow part, and the more of the outer red part, the better. Carrot pap, prepared from the *juice* of the root without the indigestible fibre, has been recommended for scrofulous children and adult dyspeptics.

The *Parsnip* possesses the same general characters as the carrot. Being sweet, it is well adapted for children's use, but should be avoided when old and stringy.

The *Turnip* contains a very large proportion of water (91 per cent. according to Dr. Letheby), and hence is of little nutritive value, and is more difficult of digestion than carrots or parsnips. Young turnip tops gathered in the spring are wholesome.

Radishes are somewhat like the turnip, but being usually eaten raw, are often indigestible.

We now turn to another class of vegetables. The leaves, shoots, and stems of some plants are valuable for food, chiefly on account of the salts they contain, and because they give variety to the diet. They should generally be grown quickly, in order that woody fibre may be less abundantly formed, and without much light, that the characteristic properties may not be unduly developed. If the chlorophyl, which gives the green colour to vegetables, be abundant,it is apt to produce purging —indeed, green vegetables are always more or less relaxing. They are consequently useful when the bowels are constipated, and must be altogether avoided when Diarrhœa or Dysentery is present. They possess a high anti-scorbutic value. In all cases they should be eaten as fresh as possible, for every hour's delay after they have ceased to grow they become less digestible. When sprinkled with water after they have been kept, they may look well, but never regain their early freshness; hence they often ferment in the stomach, and cause flatulence.

Cabbages, Savoys, Sprouts, Cauliflower, Broccoli, etc., are of the same general character; but as the proportion of water in their composition is very large, they are not very nutritive. Moreover they are not easy of digestion, and therefore not suitable for dyspeptics, while the large proportion of sulphur they contain causes disagreeable flatulence of carbonic acid and sulphuretted hydrogen. *Cabbage*, however, is a most valuable anti-scorbutic, but if fermentation has begun its virtue is destroyed. Bleeding of the gums and Purpura are benefited by it. The best sorts of cabbage are the old white garden variety and the summer cauliflower. They should be soft but crisp before being cooked.

Spinach is wholesome, and somewhat laxative.

Rhubarb is eaten as a fruit rather than as a vegetable, but must be cooked in order to render it eatable.

As it contains oxalate of lime, it should be avoided by those who are subject to Calculus.

Laver must be soaked in water before cooking to remove saline matter, and is then useful.

Celery is sweet and mild when cultivated, but on account of the quantity of woody fibre in its composition is indigestible when eaten raw. If so eaten, it should be with a light lunch of bread and cheese not after a full meal. Stewed in beef gravy it makes a delicious and wholesome soup.

Sea-kale, if perfectly white and properly cooked, is delicate, nutritious, and easy of digestion.

The *Green Artichoke,* which is the flower-head of a species of thistle gathered before the flower expands, is a delicate vegetable, and when boiled till it is quite soft, may be eaten freely by invalids.

The *Asparagus* is a young shoot gathered before it expands. It should be eaten as soon as possible after being cut, and is then most wholesome. The greenest heads are to be preferred, as they contain the largest amount of the peculiar principles of the plant. There need be no fear that they will prove injurious to the kidneys, as some persons suppose. Slight cases of Rheumatism have been cured by eating freely of this plant; and chronic cases of rheumatic gout and gravel much relieved.

Onions are very wholesome vegetables, whether eaten raw, or stewed, or roasted; they are too strong, however, for invalids when they have not been cooked, as they possess strongly irritant and stimulating properties. Those imported from Spain and Portugal are sufficiently mild and sweet for ordinary diet, especially if they are boiled in two or three waters. Onions act as anti-scorbutics, and to some as a laxative.

Leeks should be white, and have little smell; they are then soft and good, and very digestible.

Lettuce is agreeable, cooling, and digestible as a salad; the juice is mildly soporific.

Water-cress and *Mustard-and-cress* form wholesome salad.

Cucumber, eaten raw and quite fresh, may be taken with bread and cheese as a light lunch, but should not follow a more substantial meal, for it is indigestible, and apt to disagree with many persons. Stewed, it is light and wholesome.

Vegetable Marrows and *Pumpkins* contain much water but little nutriment; they are easily digested.

Mushrooms, which are generally eaten after being stewed, sometimes disagree with those who take them; nevertheless to most persons they are not injurious, though by dyspeptics they are best avoided, for sometimes they cause colic, vomiting, and purging. Forced mushrooms are sometimes tough and indigestible; those grown in open pastures are by far the best. It is not always easy to distinguish mushrooms from poisonous fungi, so that some caution is desirable in gathering them and preparing them for food.

"A meadow mushroom should peel easily, and it should be of a clean pink colour inside, like a baby's hand, and to have a frill or 'curtain' (as botanists call it), attached to the stalk. When the gills are brown they are growing old and dry, and losing their nutritive qualities."— *Chambers.*

Vegetable Broths, made of any of the ordinary market vegetables in season by boiling and straining, are useful as substitutes for animal foods when the latter are not allowed. Out of season dried vegetables may sometimes answer the purpose. In preparation of these, and in all other cookery for the sick, so far as possible, non-metallic surfaces only should be allowed to come in contact with the materials employed. A simple method is to put them into an ordinary basin or bowl, placing this in a saucepan of water and covering the basin with a saucer. The water in the saucepan is made to boil, and thereby the food is duly cooked.

Fruits are agreeable and refreshing, but as their proportion of water is high and of nitrogenous matter low, they are of little nutritive value. When taken in moderation they are very wholesome, counteracting the unhealthy condition which attends a diet of dried and salted provisions, and promoting a somewhat relaxed state of the bowels. Fruit should not be taken, as it usually is, after a substantial dinner. It is best eaten in the morning as a lunch, with stale bread and a little water. When consumed in large quantities fruit is injurious; particularly if it be unripe or over-ripe,—in the former case by the action of the fruit-acids, in the latter by fermentation and decomposition. Fruit is very beneficial to gouty and rheumatic subjects, because the alkaline vegetable salts become decomposed in the system and diminish the acidity of the urine. But patients should avoid acid fruits, if there is Diarrhœa present, to contra-indicate their use. The seeds of all fruits and vegetables, if swallowed, prove more or less irritating to the intestines, and in inflamed or ulcerated conditions may do irreparable mischief.

Apples when raw are not easily digested: when cooked are light, digestible, and wholesome. Roasted apples are somewhat laxative, and may be eaten to counteract Constipation. The skin and core should be rejected. Dried apples are prepared for use by being stewed.

Pears when ripe are more digestible than apples, but as they decay sooner, they are more likely to produce derangement of the bowels. If they are sound, juicy, and soluble, they may generally be taken without danger. The *medlar*, as it is only eaten when decayed, is for this reason unsuitable for invalids.

The *Orange* is one of the most agreeable and useful fruits for the sick room: it is exceedingly grateful and refreshing, and is less likely to cause disorder than most other fruits. A heavy orange, with a fine thin rind, and the greenish calyx still attached, is usually the most juicy and the best adapted for the invalid. Old oranges, with many pips in them, are not so valuable.

The *Lemon* is too acid to be eaten alone, except that its juice is grateful, refreshing, and beneficial in rheumatic affections; but in the form of lemonade it makes a cooling and wholesome drink for all occasions. Lemon-juice is very valuable as an antiscorbutic ; so also is lime-juice. Lemon is elsewhere recommended as an addition to tea.

Plums are less wholesome than most other fruits, though this objection to them is lessened by cooking them. They produce Colic and Diarrhœa, and are employed occasionally to promote relaxation in cases of Constipation of the bowels. *Cherries* also, when unripe or over-ripe, disorder the bowels.

Peaches, *nectarines*, and *apricots* are luscious fruits, when quite ripe, yielding a delicious pulp for the refreshment of the invalid ; the skin should be rejected.

Grapes are most refreshing, wholesome, and nutritious in the sick room, when ripe and not decayed, the skins and pips being rejected. They may be safely taken, and if eaten freely are somewhat diuretic and laxative.

Raisins, which are dried grapes, contain more sugar and less acid than ripe grapes ; they are consequently more nutritious, but are less cooling to the parched mouth of a feverish patient. If eaten too freely, especially if the skins or pips be swallowed, they are apt to disorder the stomach. Muscatels are the best, because they have been allowed to dry on the vine. The quality of raisins is determined by their softness and plumpness, and the absence of mites. If these be present, the quantity of sugar, which constitutes the value of the fruit, is lessened, and instead thereof we have feculent remains and carbonic acid. *Currants* are also dried grapes, and are so indigestible that they generally pass through the alimentary canal without any change; this is because the waxy, waterproof skins are usually unbroken.

Gooseberries and *Currants* (red, black, and white), are wholesome, cooling, useful fruits; refreshing and laxative in the sick room; but together with *Raspberries* are generally interdicted in acute diseases. The *Cranberry*, *Barberry*, *Bilberry*, and *Elderberry* are too acid to be eaten raw; the first three are made into preserves, the last into wine.

The *Strawberry* is one of the most delicate, luscious, and refreshing of summer fruits, and may as a rule, be taken by invalids except when Diarrhœa is present. The *Raspberry* too, is agreeable and wholesome. So also is the *Blackberry* when in fine condition. The *Mulberry* is more acid, and very grateful to fever patients; but the juice only should be taken..

The *Melon* is a rich, delicious fruit, but not unfrequently disagrees with those whose digestive powers are weak. The *Pine apple* should not be eaten by invalids; the pulp should be rejected if the juice be taken.

The *Fig* is sweet and nourishing; its pulp may be eaten by invalids, but if eaten too freely will irritate and disorder the bowels; the skin is rather indigestible. *Tamarinds* are cooling and laxative; and when mixed with milk to produce tamarind whey form an agreeable drink for febrile cases.

Of *Olives* the so-called Spanish are the best, being soft, pulpy, and oily. *Olive oil* is regarded by M. St. Cyr as the most digestible of fatty foods, even more so than fresh butter ; it should, however, be thoroughly good, pale, clear, and free from rancid smell, to justify this estimate. Lucca oil with its nutty odour is the best.

Gum is the solidified juice which exudes through the bark of trees. Gum arabic, which flows from the acacia in Arabia, Egypt, etc., is what is usually employed in the preparation of drinks. In its preparation clear gum should be selected, washed in cold water, and then slowly dissolved in cold water. When made of the powdered article or with hot water the flavour is less agreeable. When flavoured with a little sugar it is a refreshing and nourishing beverage for invalids. Mucilage differs from gum water in containing a larger proportion of the gum. It is admirably adapted for use in inflammation of the mucous membranes generally, as in catarrh, bronchitis, etc.

Seaweeds are among the most nutritious of vegetable products ; in fact, they are richer in nitrogenous matter than oatmeal or Indian corn. It is much to be regretted that they are so much neglected. They may be prepared for food by being first steeped in water to remove saline matter, and in some cases a little carbonate of soda should be added to the water to remove bitterness. They should then be stewed in water or milk until they are tender and mucilaginous. When cooked they are best flavoured with pepper and vinegar. The most useful varieties are the porphyra, known as *laver* in England, *slouk* in Scotland, and *sloke* in Ireland; carrageen or Irish moss; and the Laminaria called *sea-girdle* in England, *tangle* in Scotland, and *red ware* in the Orkneys. Iceland moss is preferable to Irish moss; it has a fuller flavour, and less tendency to affect the bowels. Seaweeds are prepared for the table by steeping them either in cold or in hot water, sugar being added if desired.

Sugar is an important alimentary product, chiefly found in the vegetable kingdom. It also exists in the animal economy, and is there known as the sugar of milk. The vegetable sugar exists in two varieties—cane sugar and grape sugar. Cane sugar is very sweet, and crystallizes easily; and though usually extracted from the cane, is also obtained from the beet-root, and is found in other vegetable forms. Grape sugar, or glucose, is inferior in sweetness and crystallizing power, and abounds in grapes and other fruits and vegetables. It may also be obtained by chemical change from cane sugar, starch, gum, etc. It is chiefly used to adulterate cane sugar. Sugar is valuable from a dietetic point of view, not only as rendering more palatable many articles of food, but also as productive of fat and force. As it is readily dissolved and diffused, it requires no preliminary digestion in order that it may be absorbed through the mucous membranes. In ordinary cases it does not, therefore, occasion any gastric derangement; but when taken in excess, or by some dyspeptics, it is liable to undergo acid fermentation, and occasion acidity and flatulence. Sugar-of-milk, however, does not undergo this change. Coarse brown sugar always contains dirt, sand, and occasionally mites; indeed, from handling it grocers get *psoriasis palmarum*, or grocer's itch, a very troublesome skin affection. Loaf sugar and sugar-candy are the most free from adulteration. It should be borne in mind that sweetened food is apt soon to cloy the appetite of invalids, and that attention must be directed to what is savoury to secure agreeable change.

Treacle and *Molasses* are the respective uncrystallized residue drained from refined and raw sugar.

Golden Syrup is treacle purified by being reboiled and filtered through animal charcoal. If largely taken, these products are laxative. They are appropriately taken with all kinds of farinaceous food, such as bread-pudding, porridge, etc.

Honey is a concentrated sugar mixed with odorous, colouring, gummy and waxy matters, gathered from flowers by the bee for its own consumption, but undergoing some modification by the secretions of the insect. It is of the same dietetic value as sugar, is slightly laxative, and is often used in the sick-room as a demulcent and emollient.

Manna is the solidified juice of some species of ash, containing a peculiar saccharine principle—sweet, odourless, crystallizable, white,—but differing from sugar in that it does not undergo alcoholic fermentation when brought into contact with yeast. It is chiefly used as a mild and safe laxative, but it is also nutritive.

Such condiments as vinegar, salt, and pepper are of real dietetic value, as they make the food more tempting to the palate, stimulate a flagging appetite, assist digestion by promoting the flow of secretions and the movements of the alimentary canal, and counteract the action of injurious ingredients of food. Excessive use of them, however, promotes indigestion, and they are of less value in the sick-room, salt excepted. The constant presence of this mineral in the secretions, and the necessity for it in due proportions in the blood, indicate the importance of a proper supply with the food. This is evident in the instinctive desire of animals, and in our own craving for it when it is not supplied in sufficient quantity. It is essential to the maintenance of health, and must not be forgotten in the diet of the invalid.

Vinegar is useful in helping the stomach to digest both animal and vegetable food, particularly if the fibre is somewhat hard and difficult to break up. It is, therefore, the fitting accessory to such animal food as invalids should banish from their table, but it can be made use by those of weak digestion, when they wish to vary their diet with a cool salad.

Both cayenne and black pepper, by stimulating the flow of gastric juice, are valuable aids to digestion, when used with discretion.

CHAPTER V.

LIQUIDS.

Water.—There is no beverage so wholesome, or, to the unperverted taste, so agreeable, as pure water, the natural drink of man, which may always be taken in moderation when thirst is present. In some form or other it is essential to life. Water is requisite in many functions of the animal economy; for example, it favours digestion by promoting the solution of our food, and acts as a vehicle to convey the more dense and less fluid substances from the stomach to their destination in the body. It gives fluidity to the blood, holding in suspension, or solution, the red globules, fibrin, albumen, and all the various substances which enter into the different structures; for the whole body is formed from the blood. Not only the soft parts of the body, but even the very materials of the bones, have at one time flowed in the current of the blood. Water enters into the composition of the tissues of the body, lubricates those tissues, and forms a necessary part of our bodily structure. It equalizes the temperature of the body by evaporation, and regulates the chemical changes resulting from nutrition and decay. It is the vehicle for the removal of effete products from the body; increased water-drinking causes increased flow of urine, and thereby facilitates the excretion of solid particles In this way some of the impurities which cause gout, gravel, etc., may be eliminated. To prove how essential water is for the development and maintenance of the animal body, we may here state that a calculation has been made which shows that a human body, weighing 154 lbs., contains 111 lbs. of water. A man of adult age, average size, and ordinary employment, requires from three to four pints of liquid to drink in the twenty-four hours. Such facts suggest the necessity for obtaining water pure, and taking it unpolluted by animal and mineral ingredients. Notwithstanding, where *strict chemical purity* and an *unlimited supply* of water cannot both be secured, the latter should be regarded as of the greater importance.

It has been supposed that water should not be taken with meals, lest it should lessen the digestive power of the gastric juice by diluting it. But this is an error. The probability is that as fluid is rapidly absorbed, what is taken at the meal facilitates the secretion of the gastric juice at the time it is required. An excessive quantity might prove prejudicial. But where persons are exposed to great heat, and are obliged to work with violent exercise, large quantities must be taken ; and then nothing is better than simple water, the purer and softer the better, unless a little oatmeal be added.

Water is the same substance, from whatever source it is derived, whether from seas, lakes, or rivers. When allusion is made to differences between waters, it is really to various bodies mingled with the water. Thus a water analysis really means an analysis of the foreign bodies held in suspension by the water. These foreign matters are exceedingly small in all drinking waters, but in sea water there is about one part of solid substance to thirty parts of water. In common waters there are only about 16 to 20 grains in 70,000 grains, or a gallon of water. Common salt is dissolved in three or four times its quantity of water; but carbonate of lime is not dissolved in less than 20,000 times its quantity. Salt occurs more or less in every drinking water, and is undoubtedly wholesome; but inasmuch as sewage is highly charged with salt, any water in which there is an excess is to be regarded with very great suspicion. Many of the worst wells in London have been resorted to by the public and highly valued on account of their slight flavour of salt; the water was, however, prejudicial to health. Thirty grains of salt to a gallon of water improve it considerably for drinking purposes. The excellences of water are purity, softness, the presence of air and carbonic acid to give freshness, and of salt to make it tasteless, and to prevent its ready contamination by lead.

Water is sometimes *soft* and sometimes *hard*, according to the appearance or non-appearance of soap-bubbles when washing. Generally speaking, the difference depends upon the carbonate of lime held in solution; until this is exhausted soap-bubbles or lather cannot be produced. There are degrees of hardness; thus a water is said to have six degrees when a gallon consumes as much soap as will combine with six grains of carbonate of lime. Hardness is due to the presence of magnesia as well as lime. Carbonate of lime in small proportion in drinking water is not injurious to most persons. Indeed, there is evidence to show that it is assimilated, and aids in the formation of the phosphate of lime in bones ; it is therefore useful for rickety children. Hard waters, however, are not only unpleasant in use and harsh to the skin, but have a tendency to dry up the mucous membranes just as they do the skin ; hence they may arrest the digestion, and cause gout, stone, gravel, and goitre in districts where they are habitually taken. Persons may thus suffer from drinking the waters of a district ; and on the other hand, if they have been accustomed to use a water which contains a large proportion of carbonate of lime, they may lose their health by drinking soft water. Attention should therefore be paid to the quality of the water of a district by persons selecting a residence ; they may go where the water would be prejudicial because it is too hard, or because it is too soft ; and they may relieve their ailments simply by removing to a neighbourhood where they can drink a different water.

Water now and then contains some metal,—such as iron, lead, and copper. It ought not to be drunk if there be more than one-tenth of a grain of iron or copper in a gallon of water. A very minute proportion of lead is injurious.

Rain-water is soft, and naturally contains the largest amount of solid impurity, but unless carefully collected in specially clean vessels in the open country, and then covered, is likely to become impure. If, however, the atmosphere be impregnated with smoke from crowded dwellings or fumes from chemical and other factories, it cannot be relied on for purity. If, however, it fall through a pure atmosphere it may be contaminated with what has accumulated on housetops and in water-pipes ; and if collected from the roofs of houses and stored in underground tanks it is often polluted to a dangerous extent. It is therefore rarely in a fit state for drinking, though it may be very useful for domestic purposes. Its freedom from earthly salts, moreover, renders it liable to contamination from leaden pipes if it should be brought through them. But so beneficial are its effects upon the skin, that an exclusive use of rain-water for washing would greatly modify, if not entirely remove many skin diseases.

Spring water is rain-water which has percolated through the earth, and acquired saline elements from the soil through which it has passed. Chalybeate and other mineral waters are thus charged, and to such a degree as to render them unsuitable for ordinary drinking or culinary purposes. They should be taken only when prescribed as therapeutic agents.

Well water is collected spring water. If the well be deep, and there is no leakage into it from some higher layer of soil, or from some neighbouring decaying animal or vegetable matters, it usually affords a safe and wholesome drink. Some of the purest water is obtained from deep wells bored through the earth and clay down to the chalk. Of the different varieties of drinkable water, the best for dietetic purposes are deep spring and well waters. Superficial well water, however clear, bright, and tasteless, should be regarded with suspicion, for it is frequently saturated with leakage or soakage from privies, drains, or cesspools, often covered up and unknown. Water collected from uncultivated land and allowed to subside in reservoirs, or filtered through sand, constitutes good water for domestic purposes; but water collected from the surface or drains of cultivated land is always more or less polluted with organic matter, even after subsidence in lakes or reservoirs, and hence is not good for drinking purposes, unless it be thoroughly filtered before being used.

River water is partly rain water and partly spring water, subject to impurity from the soil, and from decaying vegetable and animal matters, and therefore only useful to a limited extent. The flow of the stream and the absorbing influence of vegetation tend to purify the water by oxidation.

Distilled water is pure, but insipid from its lack of air; its softness makes it easily susceptible to the action of lead; but it is excellent for making tea or other infusions.

Water may be impure from an excess of saline ingredients, from the presence of organic impurities, or from contamination with lead. The chief danger to health is from organic impurity. Cholera and enteric fever have been traced to drinking impure water. Lead contaminates pure water; but if there be a moderate quantity of earthy salts in the water, they form an insoluble incrustation in the pipes, which is protective.

It is most important that the receptacles for water—tanks and cisterns—should be carefully examined and thoroughly cleansed at regular seasons, especially after a time of drought and before the approach of winter. Much mischief is often done, and disease induced, by allowing cisterns to fill up after they have been dry or the water in them low; the quantity of sediment and filth is frequently very great, and if not carefully removed becomes mingled with every fresh influx of water, and thus diphtheria, enteric fever, and other blood diseases may be set up. The deleterious consequences that ensue from neglect of this duty are often alarming, although the source of the evil be unsuspected. Boiling water removes some of the salts from hard water, and destroys the activity of any organic impurities. Filtration, especially through charcoal, also purifies the water by removing organic matters; but a filter, to be effective, must be frequently cleansed. The most ready test of the presence of organic matter is to put a drop of Condy's ozonized water into a tumbler of the water to be tested; if the tint does not remain the water is impure.

Water may be administered to patients at any temperature that may be desired, but if very cold the quantity should be very small, for in some diseases it is undesirable to lower the temperature of the internal organs. If the stomach is in such an irritable state that no liquid can be tolerated, the thirst may be partially allayed by sucking small pieces of *ice;* but where ice is substituted for water its use must be constant, because ice tends to increase thirst rather than allay it; hence the desire for drink is imperfectly satisfied; so that where water can be borne ice should not be given. Moreover the reactionary effects of its continued use are not beneficial. When ice cannot be procured, water may be cooled in a porous water jar.

Ice is a valuable therapeutic agent, and is now extensively used both internally and externally, chiefly to check hæmorrhage, to moderate inflammation, and to soothe uneasy sensations in febrile and other disorders. In *inflammation of the brain* or its membranes, and in the *severe headache* of the early stages of acute fevers, it is most useful, applied in small pieces, enclosed in a bladder or india-rubber bag, in the form of a cap fitted to the head.

To relieve the severe *pain* and *vomiting* in cases of *ulcer* or *cancer* of the stomach, a bag containing small fragments of ice should be laid on the epigastrium.

In *inflammation of the tonsils*, the *sore-throat* of scarlatina and other eruptive fevers, and in *diphtheria*, the use of ice relieves pain and arrests inflammation. Ice also modifies the secretions from the throat, and so obviates frequent painful efforts to detach the mucus from the crypts and follicles of the tonsils. For these purposes small pieces should be sucked repeatedly.

In *hæmorrhages*, ice is extremely valuable. In *bleeding* from the *mouth*, *throat*, or *nostrils*, ice applied directly to the bleeding vessels or to the surface forms an efficient styptic. When hæmorrhage comes from the *stomach* or *lungs* ice should be repeatedly *swallowed* in small pieces, for so taken it will help to contract the leaking bloodvessels.

The use of ice internally should be avoided after the fatigue brought on by long continued or violent exercise, it is then too lowering to the system; and instead of allowing a patient to cool gradually it gives a sudden check to animal heat and to perspiration. Drinking iced water under these conditions is even still more hurtful to the system.

To allay *local inflammation* or check hæmorrhages from the surface, ice broken into small pieces should be enclosed in a bladder or thin india-rubber bag. When one-third filled, the air should be squeezed out of the bag, which should then be tied at its mouth on an inserted cork, so large and long as to bear the tight pressure of the twine. The bag may then be made into almost any shape, and fitted to the irregularities of the body. (*Ringer.*)

Ice is contra-indicated in conditions such as the following:—*Old age*, especially in feeble patients; *apoplexy* and *coma* in persons with a feeble pulse; *advanced* stages of disease; *extreme feebleness.* In such cases the great sedative power of ice might overwhelm the patient, and stop the action of the enfeebled heart. It is also advisable to avoid too great a shock to the system in any case.

Tea is a very favourite beverage, but it affords no direct nutriment; the sugar and cream or milk usually taken with it yield the nutritious elements. But though yielding no absolute aliment, tea, when taken in moderation, exhilarates, restores nervous energy, conserves force, retards the waste of tissues, enabling the food to go further in its nutritive action, and facilitates the transformation of other food, and particularly of fatty and farinaceous matters; the body is revived, the mind is stimulated, wakefulness is promoted, and hunger is better borne. When consumed in large quantities, tea acts prejudicially on the nervous system. It then promotes nervous agitation, muscular tremors, prostration, and palpitation; it may also cause nausea, derangement of the stomach, and abdominal pains. Green tea, even when genuine, is stronger than black, possesses more active properties, and is therefore to be used with more caution. Both kinds, when adulterated, are more or less injurious.

"To express in a few words the advantages derivable from the use of tea, it may be said that it forms an agreeable, refreshing, and wholesome beverage, and thereby constitutes a useful medium for the introduction of a portion of the fluid we require into the system. It secures that the water consumed is rendered safe for drinking by the boiling which is necessitated as a preliminary operation in making tea. It cools the body when hot, probably by promoting the action of the skin; and warms it when cold, by virtue, it would seem, of the warm liquid consumed.

In a negative way it may prove beneficial to health by taking the place of a less wholesome liquid. Through the milk and sugar usually consumed with it in England it affords the means of supplying a certain amount, and not by any means an insignificant amount, viewed in its entirety, of alimentary matter to the system. Experience shows that it often affords comfort and relief to persons suffering from nervous headache. It also tends to allay the excitement from, and counteract the states induced by, the use of alcoholic stimulants; and further, on account of its anti-soporific properties, like coffee, is useful as an antidote in poisoning by opium." (*Pavy.*)

Tea, then, is hurtful,—1. To those of spare habit and the underfed. 2. To the young who are provided with the full amount of vital activity. 3. To those who perspire too freely. 4. Early in the day for it is then apt to increase tissue waste. 5 To nervous, hysterical subjects, or to those whose hearts' action is very weak.

On the other hand—it is beneficial,—1. For the over-fed and sedentary, for they require increased vital action. 2. For the old, whose vital activity is deficient. 3. For those who have a non-perspiring skin. 4. During the after part of the day, when the system is full of partly digested food, for then the process of digestion requires to be quickened. 5. During excessive heat, in order to relax the skin and relieve internal congestion. 6. For those whose nervous systems are firmly braced up.

As commonly prepared, tea is often the cause of much Dyspepsia, particularly when drunk in excessive quantities, or too frequently, that is, as a rule, more than once a day. In some nervous and gastric disorders, tea, and other hot beverages, are better discontinued, at least for a time. In this way intractable cases have often been cured. Dyspeptics, suffering from flatulent indigestion, should take tea in very moderate quantities only, as an excess of fluid increases the gaseous distention of the abdomen. Dispensary patients, especially poor women, often drink tea at every meal, and much ill-health is the consequence. When tea causes loss of appetite, palpitation of the heart, mental excitement, or sleeplessness, obviously its use should be relinquished. Tea should never be given to children, even although largely diluted. The common practice of adding a small quantity to milk-and-water begets a relish for it, leading to its use at an age when the nervous and muscular systems require no such aid.

Tea taken with animal food—"tea-dinners," or "meat-teas," as they are called—is more liable to produce indigestion than when the meal consists chiefly of bread and butter. Two or three hours after dinner, when digestion has proceeded to far too be much interfered with, the habit of taking one or two small cups of tea is usually unobjectionable; but tea is always better avoided at bedtime.

In the preparation of tea three principles are extracted; one aromatic (*oil*), another nitrogenous (*theine*), the other astringent and bitter (*tannin*). The last, the cause of gastric disorder, is only given off after prolonged infusion; whereas the aromatic oil and theine are completely extracted in about two minutes. Hence to make tea, especially for the dyspeptic, it should be made by pouring *boiling* water, (not water that *has* boiled) on the leaves, and allowing it to stand for two minutes. It may then be poured off into a heated teapot, so as to separate it from the leaves. Thus prepared, tea is not so likely to cause flatulence; but it is less economic than the ordinary method, much more tea being required to give flavour. If the tea be good the infusion will be fragrant, not very deep in colour, not harsh nor bitter to the taste. The leaves should not be boiled, otherwise the peculiar volatile aromatic principle is dissipated; nor, for the same reason, should the infusion stand long; in this case also too much roughness and bitterness are added to the flavour by the extraction of tannin. This tannin, though it makes the tea look strong, is worse than useless, inasmuch as it renders the food taken with the tea insoluble and indigestible. The finest teas colour the water the least. In an ordinary infusion the first cup of tea is also the best, having more of the choice flavour and aroma, and less of the astringency and colour. River water makes the best tea; soft water is to be preferred to hard; but soda should not be used, for it only extracts the astringent tannin. The water should only boil once, immediately before using it, and not for hours, as is sometimes the case; the teapot should be quite *dry*, as well as hot, when the leaves are put into it, and the infusion, as before stated, not allowed to exceed two minutes.

Teapots that retain the heat are better than those that allow it to pass off readily; hence black earthenware teapots should not be used; white glazed earthenware, or porcelain, are suitable; but brightly polished silver teapots are the best, for they radiate much less heat than any other material.

The Chinese drink their tea without any admixture; the Russians add lemon juice; the English, sugar and cream or milk.

The use of sugar in tea.—Except in small quantity, tea should be given up by persons who have a tendency to become corpulent. According to some tastes, the flavour of tea is improved by substituting lemon for cream or milk,—pouring the hot tea over a slice of lemon cut with the rind upon it. Besides being more palatable, the lemon-juice more effectually allays thirst, and is especially valuable at those seasons of the year when fruits and fresh vegetables are not generally to be obtained.

"The best tea is that which is pleasantest to the taste of the educated customer, and which contains most of the characteristic sedative principles. The sedative principles in the leaf consist of an essential oil, which may be smelt strongest in the finest teas, weakest in the inferior sorts, entirely absent in fictitious teas, and of the alkaloid theine, which may be demonstrated by heating some tea, dry, in a silver pot, when the salt will appear as a white bloom on the metal. If there is any bouquet at all, or any theine at all, in the specimen examined, it is worth something.

"The shortest way to test the comparative value of different specimens is to put a teaspoonful of each in one of the little china tea-pots or cups with covers, here used as ornaments, but originally intended for this very purpose, which has been previously made quite hot; shake the tea about in the hot pot a few seconds and then pour on, quite boiling, a small half-cup of water on each. Cover them up quickly and let them stand by the fire about a minute. Taste them immediately, without milk or sugar, and choose that which has most aroma."—*Dr. Chambers.*

Coffee contains the same principle as tea, and hence has an analogous influence on the system. It is, however, more heating and stimulating, heavier and more oppressive to the digestive organs, and decidedly increases the force and frequency of the pulse. Its effect upon the mental faculties, quickening their energies and causing wakefulness, is not so marked as in the use of tea. It, however, relieves hunger and fatigue, and thus enables soldiers on heavy marches to undergo arduous exertion; it appears to have a staying power, lessening the amount of waste, and thus economizing other food. It is laxative to some and constipating to others, and is serviceable in warming the body in cold weather; it is also cooling in warm weather by stimulating the action of the skin, though not so much so as tea. It has been found beneficial to those weary from travelling in the heat and suffering from want of food, also in diarrhœa from overwork with anxiety If taken in excess it produces feverishness, palpitation, anxiety, deranged vision, headache, wakefulness and nervous excitement. It is employed as a therapeutic by the new school of medicine. It thus relieves headache, soothes nervous excitability, and when given strong counteracts the effect of alcohol and of opium.

For ordinary dietetic purposes it is advantageous to make both an infusion and a decoction. The infusion, made by pouring boiling water on the recently ground coffee, extracts the volatile aromatic principle ; the subsequent boiling of what has been infused extracts the remaining ingredients ; this decoction, free from grounds, when poured in a boiling state over the freshly ground coffee takes up the aroma ; a decoction can then be made of the grounds from which the aromatic principle has thus been removed. Soft water acts as an extractive better than hard. A most important point in making good coffee is to use a *sufficient quantity* of the powder. The minimum that should be allowed is 1¼ oz. to a pint of water. The *café noir* of the French contains a larger proportion than this. *Café au lait* consists of a decoction of strong coffee, to which an equal quantity of hot milk is added. It is especially necessary to remember that the full qualities of coffee are not obtained if water is used at a temperature lower than that of the boiling-point. The particles of ground coffee are often found suspended in the liquid, and isinglass or white of egg is sometimes used to refine it. Nothing, however, is required beyond pouring a cupful out and returning it to the pot to effect the necessary clearing.

The addition of boiling milk, in the proportion of one-fourth part, adds greatly to the flavour and virtue of the coffee. Lastly, when coffee is taken daily, an enamelled saucepan should be used for this purpose exclusively.

In the choice of coffee, the best is from Guatemala (said to be from Mocha), in the form of small round beans. In the preparation of it, the best plan is to purchase the beans whole, with the aroma still clinging to them, roast them, grind them, and add chicory to taste. When made the coffee should not be kept boiling or the aromatic oil will be lost. After securing a proper quality of coffee beans, the next very important object is to know that the process of *roasting*, on which the agreeable flavour of coffee very much depends, has been properly done. If roasted too little, the oil and empyreumatic constituents are not developed ; or, on the other hand, if done too much, they may be destroyed. Dr. E. Lankester states that coffee beans, when roasted, may have three degrees of shade—reddish brown, chestnut-brown, and dark brown ; and when a full-flavoured coffee is preferred, probably the darkest is the best. After roasting, coffee should not be kept long before it is ground. This is usually done in a coffee-mill ; or it is pounded in a mortar. In either case the mill or mortar should be used for no other purpose, as coffee has a marked tendency to absorb other odours, and thus to acquire a flavour not its own.

Lastly, when ground it should be used as soon as possible, for in this state it rapidly gives off its volatile oil. The best method for keeping it for a short time is in a clean, accurately stoppered bottle. Lead or tinfoil covering does not so effectually retain the virtues of the ground coffee.

Chicory yields a drink closely allied in flavour and colour to coffee, and is largely used on the Continent. In this country it is mixed with coffee, which in the judgment of many persons is thus improved. It contains no alkaloid, and has no nutritive value.

Cocoa is distinguished from tea and coffee by the large amount of nutriment it contains ; indeed, it may be regarded as a food rather than as a refreshing beverage. Of albuminous matters it contains about 20 per cent., and of fatty matters about 50 per cent., before it has been subjected to the process of manufacture. The essential principle—theo-bromine—also contains more nitrogen than theine and caffeine. The fat—known as cacao butter—has this excellence, that it does not become rancid after exposure to air. But the large proportion in which this exists renders cocoa heavy and oppressive to a weak stomach, and thus unsuitable to the dyspeptic or bilious. Its very high nutritive power, however, strongly recommends it for general use.

The large amount of fat and albumen it contains renders it a most valuable article of diet, alike for strengthening the frame in a state of debility, and sustaining it under prolonged or excessive exertion. During nursing it is most useful, tending, probably more than any other beverage, to maintain an excellent supply of mother's milk. The combination of nourishing properties which cocoa contains has led to its being compared to milk. Humboldt states that cocoa and maize cakes are used by travellers in South Africa, and that the large amount of agreeable nourishment in small bulk enables them to carry easily several days' supplies.

"Cocoa nibs" contain the largest amount of nutriment, and are the most free from adulteration of all the forms of cocoa prepared for the market.

CHAPTER VI.

DYSPEPSIA.

DYSPEPSIA and indigestion are general terms employed to designate various disordered states of the digestive organs, and particularly of the stomach.

Deficient acidity of the gastric juice constitutes one form of indigestion. If the hydrochloric, or perhaps lactic acid be insufficient in quantity, the digestive function is but imperfectly performed, or is arrested entirely

Excessive acidity is another form. In this, useless acids—the acetic and butyric—have been developed by chemical changes in the food. Hence we have some of the sour eructations which frequently characterize indigestion.

Excessive secretion of mucus also interferes with healthy digestion, for it acts as a ferment, and occasions the production of useless acids.

Torpidity of the gastric glands retards the digestive process. In such cases, the irritation of the food, and the stimulus of saliva, are insufficient to excite the secretive action of the glands, hence the gastric juice is not poured out for action on the food. Persons who suffer from this form of indigestion frequently resort to spiced and seasoned dishes and condiments, to stimulate the action of the glands; on the other hand, this very torpidity is induced by the needless use of such gastric stimulants.

These different forms of stomach indigestion occasion imperfect *chymification* (the transformation of food into chyme) or afford opportunity for fermentation of the food; for when the vital functions are in abeyance, chemical affinities assert their force and produce morbid changes. Hence arise the various symptoms of dyspepsia.

Then duodenal indigestion, due to derangement of the small intestine, occasions imperfect *chylification*, (the transformation of chyme into chyle).

The various unnatural conditions thus included under the common term dyspepsia, or indigestion, obviously require different medicinal and dietetic treatment. This is also manifest from a consideration of the dietetic errors which are generally the proximate causes of indigestion.

OVERLOADING THE STOMACH.—This may occur in three ways,—by excessive quantity, excessive variety, and different digestibility of food. The quantity may be so large that it may be difficult for the stomach to deal with it; the variety may be so great that what should be digested in the duodenum impedes the action of the gastric juice on that which it is specially designed to solve; and the digestibility of different foods may be such that after the more digestible food has passed out, some remains in the stomach, an incubus to its exhausted powers. With reference to these cases it should be remembered that the quantity of gastric juice secreted is limited, and only suffices for the digestion of a moderate quantity of food; that different kinds of food—nitrogenous, starchy, and oleaginous—require the exercise of different digestive functions; and that different articles also require different periods of time for their digestion, some being liquefied in an hour and a half, others requiring six or more hours before they are fit for assimilation. The capacity of the stomach is not unlimited, either in size or in function, hence it may be easily overloaded, and its powers so impeded as to cause indigestion. For as soon as the bulk of a meal is digested, it begins at once to pass out of the stomach into the intestine, the other articles going with it whether digested or not; it is therefore obvious that if two descriptions of food are eaten at one time, a portion of the less digestible will pass along with the other into the duodenum, and produce distention, irritation, and other inconveniences. Nothing is more common, for instance, than for well-to-do persons to eat a hearty meal of fish, flesh, game, and pastry, to finish off with raw salad, dressed with oil and eaten with cheese, to say nothing of dessert consisting of dried fruits, almonds and nuts, washed down with sips of different wines! In such a case easily digested and indigestible articles mingled together overload the stomach, and half-digested materials pass out with the principal portion of the meal, causing disorders which involve discomfort, if not injury. Indeed, it may be remarked, once for all, that though the human stomach is wonderfully accommodating, retribution is sure to come at last, though perhaps not in the shape of immediate pain or uneasiness in the digestive organs themselves. Many of the complaints incident to persons in comfortable circumstances, though affecting other organs besides the stomach, such as gout, rheumatism, neuralgia, various affections of the skin, &c., can be distinctly traced to imperfect digestion or assimilation of food, though unattended with direct symptoms of dyspepsia.

2. *Cooling the Stomach.*—The natural temperature of the stomach is 98°. The maintenance of this temperature is essential to the discharge of its functions, and to those chemical changes which attend digestion. Whatever lowers it interferes with the secretion of gastric juice, and if the depression amounts to 15° or more, completely stops it. If the secretion be thus arrested, it is not resumed until by the exertion of nervous energy (so much waste) the temperature has again risen to 98°; and it has been found by experiment that after the stomach has been cooled, say 30°, it requires thirty minutes for the recovery of the temperature, after all the water has been absorbed. Hence we may infer the mischievous consequences of drinking large quantities of cold water or cold beer during a meal, to say nothing of the fashionable custom of eating ices at the termination of dinner. Digestion is thereby immediately arrested, and the food either remains an inert mass in the stomach, or, in weakly individuals and those suffering from dys-

pepsia, begins to ferment and disengage acids and gases.

3. *Stimulating the Stomach.*—The use of strong stimulants, especially alcoholic drinks, also arrests the secretion of gastric juice, and seems to produce inflammation of the mucous lining of the organ. As a general rule, any quantity of stimulants, whether in the shape of condiments, strong wine, or spirits, delays and protracts the process of digestion, instead of assisting it, as is generally supposed. The reason of this is pretty obvious; for these matters in some cases cause congestion of the glands, which lessens or arrests their secreting power; in other cases they interfere with the solvent chemical action of the gastric juice, if they do not actually decompose it; and if they be taken in any quantity they seem to act as a sort of pickle or preservative to the food, and prevent its solution.

4. *Eating too soon after a previous meal.*—The quantity of gastric juice secreted being only just sufficient to digest the first meal, none can be supplied for the second, which also begins to pass out of the stomach undigested and mixed with the first, necessarily occasioning more or less disturbance in the intestinal part of the process. The stomach also, in common with other organs of the body, needs an interval of repose for the recovery of nervous energy. The error of eating too frequently is very common, especially among those who take luncheon three or four hours after breakfast, and dine again after an equally short interval.

5. *Exertion after a Meal.*—The well-known experiment of feeding two dogs, and allowing the one to rest while the other was encouraged to hunt a hare, when it was found at the end of two hours that the first had fully digested its food, while in the other digestion had scarcely begun, is an illustration of the harm of too active exercise immediately after a meal. Even healthy people are apt to disturb their digestion by returning to business, or taking exercise of any kind shortly after eating; and dyspeptics should rest at least two hours after dinner. Nor is it prudent to exert the brain in any way after eating; for the diversion of nervous energy from the stomach to the brain deprives the former of what it needs at that time, and, if the habit be persisted in, is sure to be followed by discomfort and indigestion. Indeed, so important is it that nervous energy should be concentrated on the process of digestion, that it is unwise by reading newspapers or magazines during meals to divert attention from the food, and prevent its being thoroughly masticated and insalivated.

6. *Eating Late Suppers.*—Meals should not be taken shortly before retiring to rest. The gastric digestion is almost completely suspended during sleep; and even the intestinal digestion is but imperfectly performed. Hence the food remains in the duodenum, and by pressing on the great ascending vein (*vena cava*) is apt to produce nightmare or irregular action of the heart, and to disturb the secretion of bile, pancreatic juice, &c. For late diners supper is entirely

superfluous; for early diners no substantial meal should be taken within three hours of bedtime.

Dietetic errors such as these evidently require something besides the administration of medicines; they require reformation of habits. Obviously the evils attending overloading the stomach are to be corrected by some measure of abstinence from food, or from that form of food which more particularly distresses the digestive organs.

The quantity eaten should be always rather under than over what the appetite *seems* to require, for the appetite is apt to become morbid. Franklin's rule to leave off with an appetite is a good one. By so doing, in ten minutes the appetite will be gone, because the food taken has already begun to be appropriated by the body. The best rule is to carefully observe the sensations after eating a hearty meal; if within three or four hours there is a feeling of fulness and distention, accompanied with feverishness or irritation, it is clear that too much has been eaten, and the quantity should be diminished till it can be comfortably digested. Dyspeptics should also not mix various articles of food at the same meal, but rather vary the diet from day to day. Many substances will be tolerated by the stomach if eaten alone, or with bread only, which would occasion distress and disturbance if mixed with other articles more or less digestible in themselves. Persons with weak digestive powers should be careful not to overload the stomach when travelling, or otherwise exerting themselves more than usual. Many railway travellers, stimulated by the nervous excitement of travelling, or for want of occupation, eat a great deal on their journey. It is an error to suppose that the system requires more support when on a journey or a voyage. Food is then really less necessary than when there is active exercise. Hence the extra quantity of food and stimulant taken has the effect of increasing the disturbance and irritation which naturally arises from fatigue and excitement. In fact, the nervous energy is on these occasions diverted from the stomach, rendering the digestion less perfect than usual.

Those who suffer from weak digestion should accustom themselves to drink very little at their meals, especially of any cold fluid. The time to drink is from two to three hours after a meal, when the cold fluid restores the tone of the stomach, and assists the digested food in passing out of it to undergo the duodenal digestion. The use of strong stimulants should also be abandoned. For young and healthy persons condiments are quite unnecessary. They may afford some enjoyment as matters of taste, but if they occasion dyspepsia they are surely much better avoided.

As to alcoholic stimulants, they have been seriously misused. To children, young persons, and those in perfect health, they are as a rule worse than useless; and ardent spirits are most decidedly injurious. There are, however, numerous cases when, from natural delicacy of constitution, impaired digestion (as a consequence of disease), and still more frequently from force of habit, a certain quantity of stimulus becomes necessary. The light wines of France, Germany, and Hungary are the best for ordinary consumption. Effervescing wines give a gentle fillip to the heart's action, and a happy stimulus to the brain, but as a rule they contain too much sugar to be absolutely harmless to the gouty or dyspeptic. Many constitutions are benefited by the moderate use of good sound beer or ale, especially if taken with food. Porter is more objectionable. Dyspeptics can, however, rarely tolerate beer or ale the quantity of fixed air in them being apt to produce flatulence and distention, and the yeast to encourage the already existing tendency to fermentation during the process of digestion. The last effect is especially likely to follow the use of inferior beer and ale. But it is the use of *spirits* that does most mischief; they are generally mixed too strong, and they are taken when the stomach is empty and at unseasonable hours. Healthy persons as well as dyspeptics should therefore accustom themselves to do without stimulants, excepting in the rare cases when they are thought to be necessary by their medical adviser; and then, like other medicines, they should be the best and purest of their kind. If persons have been long accustomed to alcoholic drinks, the sudden and total discontinuance of their use may in some instances prove prejudicial; but as a rule this is not the case, the proof of this being found in the freedom from any unfavourable effects when paupers or criminals have been deprived of their customary potions, to say nothing of the testimony of reclaimed drunkards who have become total abstainers.

Now with regard to the *nature* of the food for dyspeptics, this is of less importance than the *quantity*. Still it is by no means unimportant. It should be as simple as possible at each meal, and varied from day to day; and, as Dr. Parkes suggests, when variety in the kind of food cannot be secured, variety in the method of cooking and serving it will attain the same object. Of course, all articles must be avoided which possess any distinctly medicinal properties, or are known to disagree with the individual. Still it must not be supposed that everything that has disagreed will always disagree, and must therefore be utterly and for ever excluded from the dietary. Some persons, acting on this erroneous supposition, have reduced their diet to a repulsive monotony, and have no relish for their food. Some make the great mistake of excluding solids, and take nothing but liquids. Solids are necessary to stimulate the action of the stomach, in which liquid will remain undigested; and the organ should be encouraged by hopeful attempts at variety, to appropriate articles in addition to those which have hitherto been taken. To many persons not a little comfort will be gained by taking animal and vegetable food separately, as in France; *i. e.*, taking meat at one meal, vegetables at another. Vegetables are less likely to cause flatulence if taken alone than if combined with flesh-meat. But whatever the kind, it cannot be too simple, nor too plainly dressed.

Of *meats*, mutton is usually found to be most suitable for those whose digestion is weak, and will often be more easily assimilated than beef. Roasted meats are better than boiled. Meat should not be over-dressed, nor baked in a close oven, nor cooked a second time. All fat should be rejected. Boiled chicken, venison, and lightly boiled eggs are most digestible. Then come roast fowl, lean turkey, partridge and pheasant, guinea-fowl, pigeons, followed by lamb, oysters, and boiled white fish (except cod). The last may be rendered more digestible and tasty by a few drops of lemon juice. Rich and oily fishes, and those of firm texture, should not be ventured upon. Of all kinds of fresh meat, that which is broiled is the most wholesome, nutritious, and easy of digestion. The lean of a tender rump-steak. about an inch and a half thick, and broiled over a quick fire from five to ten minutes without being cut or pricked so as to let the gravy out; or the lean kernel of a loin chop, stripped of all skin and fat, and broiled over a quick fire from five to eight minutes, will prove a tempting and nourishing morsel. The usual joints of fresh meat, especially the juicy lean portions, come next in digestibility; if they can be taken the dyspeptic has a sufficient range. Greasy meats, such as pork, duck, goose, fatted turkey, and salted or preserved meats, are to be avoided. Soups, and other liquid food, are only slowly acted upon by the stomach; and if the diet consist chiefly of them, they seldom fail to produce dyspepsia, and should therefore be avoided or, thickened with bread, rice, or pearl barley, in order that there may be something solid to stimulate the muscular coat of the stomach.

With regard to *vegetables*, they are more slowly digested than animal and farinaceous food, and are therefore more likely to undergo fermentation in feeble stomachs, and thus occasion acidity and flatulence. They should therefore be taken with caution and discrimination; still they should not be altogether omitted from the dietary, or disease in some form will ensue. Potatoes should be old and mealy, not young nor waxy; peas, beans, French beans and scarlet runners must be very young and soft. Spinach can generally be taken; of cauliflower and broccoli only the head is eatable. Cabbages of all kinds are usually objectionable, especially where there is a tendency to flatulence. Rice and other farinaceous articles, either in the form of porridges or light puddings, are generally found to agree with weak stomachs; but starchy and saccharine matters, in certain debilitated states of the digestive organs, appear to be transformed into lactic acid, and to occasion acid eructations: oatmeal is in this respect the greatest offender, rice the least. Roasted apples with a little cream and a very little sugar may serve for dessert; but raw fruit should never be eaten at the close of a substantial meal. Between such meals, or as a separate meal, ripe fruits in season, such as oranges, strawberries, raspberries, currants, grapes, peaches, nectarines, apples, or other freshly gathered fruit, will be found to agree with most persons, if eaten in moderation, and if skins and seeds be studiously rejected; indeed, if taken with a slice of stale bread they will often aid digestion. Plums uncooked should seldom be eaten by persons subject to indigestion, but when cooked, the pulp is not objectionable. Dried fruits, whether cooked or uncooked, such as Normandy pippins, figs, French plums and muscatel raisins, may be taken in moderation if skins and seeds be rejected; oily fruits, such as nuts of all kinds and olives, are objectionable.

All kinds of bread should be stale or toasted dry. Hot buttered toast, made spongy and fat, must be eschewed; so also must hot rolls, muffins, crumpets, and likewise new or fatty cakes; bread puddings are safe, plain, not sweet; water biscuits are far better than fancy sorts; pastry, puddings, and rich cakes are condemned. Cheese should not be taken after dinner; but if new cheese, cut into thin slices, toasted, and basted while toasting with cream, be served on a hot-water plate, so that it does not become hard and tough, it will prove a nutritious and tasty morsel. The most innocent and useful beverage is good, pure, filtered water; the softer the better if it be pure. The temperature at which it may be drunk should be proportionate to the temperature of the body, and its susceptibility to heat and cold. To fermented and alcoholic drinks reference has been already made. Cocoa, made from "nibs," is the best drink for breakfast; one small cup of *black* tea, infused only two minutes and a half, with a slice of lemon and a little crystallized sugar in it instead of cream or milk, is sufficient in the evening. New milk is not easily digested by some persons; but there are others who can take it better than skim-milk, whether boiled or unboiled; milk is, however, better not boiled as a rule. Butter is sometimes too rich, but good fresh farm butter is not often found to disagree; of all fatty substances it is the most easily assimilated; to some very salt, and to all rancid, butter is objectionable. Fruit, fresh or preserved, jellies, or marmalade, often prove a good substitute for butter. Eggs are usually not only wholesome, but easily digested if they are lightly boiled.

In all cases of dyspepsia the cooking cannot be too simple. Dishes fried in butter, rich sauces, and savoury compounds are quite out of place. The appetite should not thus be tempted; the natural flavour of the food, so cooked as to make it readily soluble and digestible, and served attractively, should present sufficient temptation. The food should be eaten, and the meal nearly completed before the patient drinks; indeed the principal meal of the day is better taken without any liquid. A more objectionable practice than that of drinking with solid food, is the too common habit of drinking before the meal. Food should never be taken hot, to scald either tongue or stomach is to injure two useful organs.

The following dietaries are recommended for persons suffering from flatulent dyspepsia :—Breakfast : Two or three slices of dry stale bread, with about six ounces of fresh milk. Lunch : The same, or six ounces of beef-tea (made from fresh beef, or Brand's essence). Dinner : A slice or two of underdone roast or broiled meat, or else a moderate allowance of fish, with bread only, and half a tumblerful of water. Evening meal : A repetition of the morning; and if hungry at bed time, a few biscuits, with a little water or milk. If thirsty through the day, a wine-glassful of water. Breakfast: half a pint of warm milk, flavoured with tea, one or two poached eggs, bread and butter, with from three to five grains of Boudault's pepsine. Dinner : at two o'clock, mutton chiefly, and absolutely nothing to drink with it, or (but better avoided) a table-spoonful of brandy in warm water; no vegetables. Drink—pure water between meals. Supper: brown bread, as little as possible; a table-spoonful of whisky or brandy in warm water; no malt liquor, no wine of any kind.

Breakfast at 8.—Half a pint of milk, with or without soda water or potash water mixed; one egg lightly boiled; dry cold toast, crust of bread, or plain biscuit.

Lunch at 11.—Brown digestive biscuit; half a tumbler of milk and water, or a wine-glass of claret in water.

Dinner at 1.30 to 2.30.—Roast or boiled mutton or beef, better taken warm; roast or boiled fowl or game, without any sauces; any kind of fish except salmon, without sauces; any kind of vegetable except potatoes; a small quantity of stale brown or white bread; salt to be taken freely, all other condiments to be avoided; fruit stewed with plenty of sugar, if more sugar be added subsequently it does not sweeten the fruit so well; rice preserves in small quantities: cheese to be avoided. Two glasses of claret, Carlowitz, Chablis or Hock, may be taken, but other wines to be avoided.

Tea at 5.—One small cup of weak black tea, or of cocoa freed from fat; dry cold toast, crust of brown bread, or oat-cake, with a flavouring of anchovy paste.

Supper.—A small slice of cold roast or boiled mutton or beef; white fish without sauce; a small quantity of stale brown or white bread; a table-spoonful of whisky or brandy in half a tumbler of water, or soda water if necessary. This last dietary is so ample as to include what may be selected from, rather than what may be wisely indulged in. Self-restraint rather than self-indulgence must be the universal rule with dyspeptics who wish to be free from the inconveniences of indigestion.

Diet for Scrofula.

The most important predisposing cause of Scrofula is undoubtedly hereditary constitution, and there are observations which seem to indicate that it is most frequently inherited from the mother. The practical conclusion from this is that the mother ought not to suckle her child if she come of a strumous family. If, on the other hand, she be healthy, and the child inherit the scrofulous tendency from the father, she should set herself to provide the most nourishing diet she can from her own breast, and as long as possible. Everything that will nourish her, and through her the child, until the molar teeth appear, should be perseveringly taken, and everything that will disagree with her and through her the child must be studiously avoided.

When the teeth appear, and more solid food than milk becomes appropriate, the diet should be of a light and digestible character. A larger proportion of animal food than is usually given to little children should be allowed. Cod liver oil as a supplemental article of diet is an agent possessing such remarkable and well-known properties of arresting general or local emaciation as not to require further recommendation. It may be given in childhood to arrest the development of strumous symptoms, and throughout future years either to arrest or to correct them. It may be given in any case in which there is wasting without acute febrile symptoms, in tea-spoonful doses, two or three times a day, commencing even with half a tea-spoonful if it be found to disagree, or if there be reluctance to take a larger dose. This, or olive oil, may also be advantageously employed for inunction over the chest, abdomen, and back. Beef, mutton, venison, and fowls are the best kind of animal food;

to these should be added preparations of eggs and milk, a due quantity of bread, mealy potatoes, rice, and other farinaceous ingredients, as more suited to this class of patients than very watery and succulent vegetables. Every thing that favours the production of acidity; too much fruit; very salt, sweet, fat, or highly seasoned food should be avoided. No food, not even cod liver oil, should be so given as to excite disgust. The variety to stimulate the appetite should however be in methods of simple cookery, rather in the selection of what is tasty but innutritious. Alcohol may be of some service when prescribed as a medicine, but only under the watchful observation of a medical man.

Diet for Consumption.

CHILDREN.

The diet of the children of consumptive parents is of such importance that it should engage attention from the earliest period of life. If the mother be delicate and predisposed to Consumption, a wet-nurse of a thoroughly healthy constitution should, if possible, be provided. If a consumptive mother nurse her infant, she is in danger of bringing into activity the tubercular disease in herself; while the child is but imperfectly nourished, and derives, with the supply of milk, an element of danger additional to that which it inherited from birth. The infant should be restricted to healthy breast-milk until the eye-teeth are cut, after which slight additions of farinaceous food may be allowed once or twice daily, and the child weaned at about nine months. If a wet-nurse cannot be obtained, the nourishment should bear the closest possible resemblance to the mother's milk, and the best substitute for this is cow's milk modified by the addition of water and *Sugar-of-Milk*, for the milk of the cow contains more oil (*cream*), but less sugar than that of woman. It is prepared for use as follows:—Dissolve one ounce of the *Sugar-of-Milk* in three quarters of a pint of boiling water. Warm to the temperature of breast-milk, *when wanted*, and mix with an equal quantity of fresh cow's milk, and let the infant be fed with this preparation from the feeding-bottle in the usual way. After feeding, always wash the bottle with a weak solution of carbonate of soda, and put the teat into cold water, letting it remain there until wanted again.

It is of course necessary to use cow's milk of good quality, always to administer the food freshly mixed, at a uniform temperature, namely, that of breast-milk, and for the first month not oftener than every two hours and a half during the day, and every four hours during the night. On no account should the babe be allowed to sleep with the tube of the bottle in his mouth, or to suck as often and as long as he likes. (See also on Diet in Infancy.)

About the eighth or ninth month, when the teeth usually begin to appear, a gradual change of diet is necessary. This should consist chiefly of farinaceous preparations, the best of which is, according to our experience, *Neave's Farinaceous Food;* afterwards sop made with bread which contains no alum, bread-and-milk, light puddings, oatmeal porridge, and a little mutton broth, beef-tea, or bread soaked in a little gravy as it escapes when cutting up a joint of meat. Feeding with a spoon, by favouring admixture of saliva with the starchy particles, will probably insure a more perfect digestion of the food. Till the molar teeth appear, however, all preparations of animal food should be avoided. After weaning great care should be taken, and every kind of food avoided that causes irritation or diarrhœa. Children should be fed regularly, be taught to masticate thoroughly, and not allowed to take too active exercise *immediately* after meals. Even thus early, should there be any symptoms of mal-nutrition, a small dose (ten to fifteen drops) of cod-liver oil may be advantageously given.

ADULTS.

For older persons the diet should be digestible, nourishing, varied, and sufficiently abundant to meet the requirements of each case. As a general rule it should include animal food as fat as can be digested, once or twice a day; oysters and other wholesome kinds of fish, especially those varieties which are richest in *phosphorus;* good home-made bread, not less than one day old; puddings of arrowroot, rice, sago, tapioca, etc., taken, if preferred, with stewed fruit; various kinds of green vegetables, and mealy potatoes, oatmeal, and milk; *good milk* is a priceless article of diet; raw eggs, swallowed whole, or beaten up with a little cold milk, are strongly recommended; but fresh pork, sausages, veal, fish not having scales, pastry, and all articles that give rise to irritability of the stomach, nausea, heartburn, eructations, or any other symptoms of indigestion, should be avoided. If the patient is benefited by its use, he may take a moderate allowance of beer or wine. Two or three glasses of Carlowitz, Burgundy, Claret, or Hock, diluted with water, may in some cases be given with good results.

Great discrimination should be observed with regard to stimulants; if they flush the face or accelerate the pulse they should on no account be allowed. Malt liquors are more suitable than strong wine or spirits. The English extract of malt affords palatable fat-forming material of an unstimulating nature.

The following dietary is suggested. At 7 or 7.30, a.m., or even earlier, a tumblerful of warm milk. In case of acidity or other forms of indigestion, two table-spoonfuls of lime-water may be added to the milk; or if there be much debility, a dessert-spoonful of rum may be substituted for the lime-water; or the lime-water and the rum may be alternated as required. 8.30 to 9.30, *Breakfast.* Bread-and-butter, and a lightly-boiled egg; or cold boiled or hot broiled bacon, or a broiled sole or other kind of fish, and a cup of cocoa or black tea. At 11.30 or 12, a glass of cold milk, in which a new-laid egg is beaten up. At about 1.30, *Dinner;* including a slice of roast mutton or beef, rich in fat; or a portion of a fowl, or other light meat, with vegetables; and tapioca, rice, semolina, or other milk pudding. A glass of malt liquor may be allowed if it do not, as before stated, increase the pulse, flush the face, or make the patient feel sleepy and heavy. At about 6, a cup of good cocoa, with a sandwich or bread-and-butter. White fish, fowl, or other light meat may sometimes be added. Green vegetables —water-cresses, lettuce, etc.—may often be allowed with great advantage. If anything be desired after this meal, a small basin of toast and milk, oatmeal porridge, or other easily digestible farinaceous food, may be taken at 8 or 9 p.m. But generally a good meal taken between six and seven renders this unnecessary.

Raw Beef Juice, if suitably administered, is a valuable adjunct to the food of the consumptive. Half the quantity produced according to the receipt given elsewhere may be allowed for breakfast instead of the egg or meat in the above dietary; and the other half at dinner, or instead of cocoa at "tea," according to the appetite and digestive power of the patient.

Beef Pulp has also been given to consumptive patients with great advantage.

The importance of selecting digestible food is evident from the fact that tubercles do not arise except during a period of imperfect nourishment. By whatever means we can promote nutrition, in the same ratio the advance of consumption is prevented or retarded; an important sign of improvement being an increase in the patient's weight. The system is invulnerable to consumption so long as it is well nourished by a healthy digestive apparatus.

"It is clear, therefore," writes Dr. Chambers, "that it is the tendency to tubercle, and not the existing tubercle, which we have to fear and to guard against; and that for the successful treatment of consumption we must withdraw our minds from the morbid anatomy of the locality to the fatal propensity of the constitution. I know you are disposed to turn first to the lungs. But if we inquire into the histories of those who have lived long with vomicæ (*abscesses*) or tubercles, they are by no means found to have taken special care of their chests—they have not coddled or lived indoors, in even temperatures, hanging their lives on to their thermometers for fear of coughs; they have gone on with their professions or business or work; they have not 'laid a knife to their throat,' but have eaten and drunk like other people, and have enjoyed the gratification of their appetites. A patient of mine, over fifty, with copious pyoptysis (*spitting of purulent matter*) and condensed lungs (of probably a tubercular nature) from his youth, has kept hounds, broken his bones like other Nimrods, contested county elections, sat in Parliament, enjoyed his champagne and other good things, *but never allows any doctoring of his chest.*"

"Leave the respiratory organs alone, and direct your thoughts to the organs of nutrition—the stomach and bowels, which will receive with thankfulness, and return with interest, any care you bestow upon them.

It is truly by aid of the digestive viscera alone that consumption can be curable. Medicines addressed to other parts may be indirectly useful sometimes, but they more commonly impede the recovery; whereas aid judiciously given in this quarter is always beneficial, and usually successful. Your aim should be to get the greatest possible amount of albuminous food fully digested and applied to the purpose of the renewal of the body, at the same time that the renewing agencies are brought to their highest state of efficiency. In this way a healthy cell-renewal takes the place of that morbid, imperfect cell-renewal which appears in the shape of tubercular matter."—*Lectures chiefly Clinical.*

Fatty matter, in quantities as large as it can be assimilated, has been strongly recommended. The late Sir James Simpson observed the healthy appearance and freedom from scrofula and consumption of the operatives of woollen factories, consequent on the oil which in the course of their daily labour finds access to the skin. It was also seen that the workpeople improved in appearance when engaged in the more oily processes, and often lost flesh and strength after leaving them. So impressed was Dr. Simpson with the value of oil in the prevention of consumption that he laid down rules for its application by inunction. He recommended a bland, inodorous olive-oil to be applied warm to the whole cutaneous surface, with a considerable amount of friction, which renders absorption greater.

Cod-liver Oil may be considered as an item of food, and its power in checking emaciation and improving the healthy tone of the muscular structures is now too well known to require commendation. Perhaps some of its usefulness depends on the *Iodine* and *Phosphorus* contained in the oil, thus forming a natural compound of food and medicine. It may be advantageously given in scrofulous affections, and troublesome cough, especially if occuring in a family in which consumption has been fatal.

The best time to administer the oil is with, or directly after, food. If there be any difficulty in retaining the oil, it may be given just as the patient lies down to sleep. Tasty accessories will often disguise the flavour of the oil, so as to prevent nausea. But when there exists an insuperable repugnance to the internal use of the oil, enemata containing it may be tried; or it may be introduced into the system by inunction, or by applying chamois leather soaked in it, to the chest, sides, or between the shoulders. If the reluctance to take oil cannot be removed by the addition of something tasty, *a pancreatic emulsion* may be advantageously substituted. This, according to Dr. Dobell, if given in tea-spoonful doses every four hours will rapidly cure the disease.

Besides cod-liver oil, there are other animal fats and oils which, if they can be taken and assimilated, are certain to be followed with good results: such as rich milk, cream, butter, home-fed fat bacon, and other substances rich in fatty matter. Suet boiled in milk is one of the best substitutes for the oil, and to some persons is not repugnant; its digestibility is increased if it be made into an emulsion with one of the gastric solvents. *Cream* is often of great value; to prevent its oppressing the stomach, a tea-spoonful of cold, strong black tea may be mixed with it. Cream is, however, probably inferior to cod-liver oil, and has not the same anti-tubercular effect, for the *Iodine* which is present in the former is absent from the latter. These varieties are mentioned so that in the event of a change being desired, one may be substituted for another, as circumstances indicate.

Cod-liver Oil should be regarded as food rather than medicine, although the minute amount of *Iodine* and *Phosphorus* it contains may account for some of its curative virtues. It is specially valuable in the various forms of *Scrofula*, and in all diseases which require fatty substances as food, and *Iodine* as a remedy.

In the treatment of *Consumption* it stands preeminent above other remedies by almost universal consent; for when given in suitable cases it checks emaciation and strengthens the muscular structures.

The value of cod-liver oil is often very marked in the sequelæ of many acute diseases or inflammations occurring in middle-aged and in old persons, in whom the reparative powers are less active than in children; also in the after-effects of acute fevers in children who have suffered, previously to such attacks, from impoverished health. Scrofula, rickets, chorea, etc., are generally much benefited by the administration of cod-liver oil. Chronic rheumatism and gout, chronic bronchitis, chronic skin diseases, and the degenerative diseases of the aged, are all more or less modified by the employment of this agent.

Cod-liver oil should, however, not be administered indiscriminately. (1) It is generally inadmissible during the persistence of acute febrile symptoms, congestion, hæmoptysis, or any active form of disease; digestion being then impaired, and the mucous membrane irritable, the oil is only likely to increase the disorder; not till the disease subsides, the pulse falls, and the hectic ceases, can it be of value. The sphere of cod-liver oil is to supply animal heat, to fatten the system, and arrest tissue waste: this is best accomplished when active morbid processes and local irritation have subsided, for then the system is in a condition to appropriate a larger amount of nourishment. (2) Some caution is also necessary to be observed in the administration of oil to obviate nausea or eructations. Such effects generally result from the quantity or quality of the oil. The large quantity of oil taken in some cases occasions disorder of the digestive mucous membrane, or causes it to pass off with the evacuations. The appearance of any oil unchanged in the evacuations is a sign that the quantity given is too large to be digested. We generally recommend it, at first, in teaspoonful doses, twice a day, with, or immediately after, food; if the stomach be intolerant of it, a teaspoonful, or for young children ten or twelve drops, once a day. If there be still difficulty in retaining the oil, we prescribe it just as the patient is lying down to sleep. In cases of extreme irritability of the stomach, cod-liver oil may be introduced into the system by inunction,

The disagreeable effects of oil, and the repugnance felt towards it, have often been caused by inferior and unpalatable kinds. It should be as free from smell, taste, and colour as possible, thus showing its careful and recent preparation. Freshness is of great importance to its dietetic efficacy. Probably the best method of rendering the oil palatable is to have it made up in bread, as it is then scarcely tasted. The proper proportion is two to four table-spoonfuls of the oil to one pound of dough. Patients to whom we have recommended this method of taking the oil. assure us that while pleasant and digestible, it is as efficacious taken in this as in any other way.

Coffee or milk forms a good vehicle for the oil. Some find the taste removed by eating herring, sardine, or anchovy with it. The juice of half an orange may be squeezed into a wine-glass, the requisite quantity of oil poured on the top, and the juice of the other half orange carefully squeezed on the top of the oil. Orange and ginger wine or claret are also vehicles for cod-liver oil. The oil should be poured upon the wine, so that it does not touch the glass, but floats as a large globule ; in this way it may be swallowed untasted. A few morsels of agreeable food should then be eaten. Small pieces of ice in each dose of oil also render it almost tasteless. Another plan to obviate taste and nausea is to take a pinch of salt immediately before and after the oil. Sometimes heating the oil is a good plan, as it renders it more fluid, and less liable to disagree with the patient. It is also beneficial to omit taking it for a day or two occasionally. The glass should be carefully washed after use, and the oil kept in a cool place.

DIET FOR RHEUMATISM.

In acute rheumatism the maintenance of a steady, equable temperature is of far greater importance than purity of air, or even strict attention to diet. Still the eating of nitrogenous, restorative food really retards recovery, and if resumed too soon during convalescence will cause relapse. It may be annoying to the patient to be refused the meat to which he has been accustomed, and for which he longs, but the annoyance must be borne as the lesser of two evils. For if meat be taken in any form, solid or liquid, it becomes converted into lactic acid, the excess of which is by many supposed to be diagnostic of rheumatism. At any rate, the acidity in the perspiration and urine, which is characteristic of this disorder, is markedly increased. And the more fleshy and red the meat, the worse it is for the patient. A non-nitrogenous diet, except in broken-down, debilitated constitutions, or where serious nervous or cardiac complications exist, has been found very successful in rheumatic fever. But while this diet diminishes the formation of acid, and lessens cardiac power, thus rendering the pulse smaller and softer, this second effect renders extreme caution necessary in its adoption, when either heart or brain are seriously affected.

Dr. Parkes has given biscuits made in the following manner, with very good results, and with satisfaction to the patients. "Butter was melted in a jug placed in a warm water bath, and the liquid oil was poured off. Arrowroot cakes were made with a portion of this butter, and a little sugar was added." Sweetened arrowroot or other farinaceous jellies are also acceptable.

Farinaceous food is not so readily and abundantly converted into the offending acid; this, therefore, constitutes the only appropriate diet. During the fever it should be restricted to water, milk and soda water in equal quantities, barley water, gruel, arrowroot, rice, semolina, corn-flour, panada and other preparations of bread, oatmeal porridge, mashed potatoes, etc. The cases which recover most speedily and satisfactorily are those where the patient has been kept almost at starvation point; where whatever the appetite, whatever the clamour for animal food, nothing is given but "spoon food." Even when the pain is gone, and all that appears to be requisite is the recovery of flesh and strength, nothing is gained by a speedy return to ordinary diet; in fact, relapse is rendered probable by its adoption. Mutton broth, beef-tea, and other liquid or semi-liquid preparations, and next light puddings, preparations of bread, white fish and fowl must for a time constitute the transitional diet. Malt liquors in acute rheumatism, sweet wines, and much sugar should always be avoided. But alcoholic stimulants may be needed in depression from severe cardiac implication. Lemon juice may be taken freely.

In CHRONIC RHEUMATISM the diet should be generous but easy of digestion, as attacks are often occasioned by disorders of the stomach. Beer and strong or sweet wines must be avoided. Cod-liver oil should be given to nourish and warm the system.

We may add that a sufferer from chronic rheumatism should wear red flannel next the skin, or over a cotton garment, the thickness of the flannel being regulated by the weather, and should have plenty of rest and bask in the sun.

DIET FOR GOUT.

Cullen has remarked that gout seldom attacks persons employed in constant physical labour, or those who live chiefly on vegetable diet. Subsequent observation has confirmed the truth of this remark. It appears to be probable that gout is occasioned by an accumulation of imperfectly changed nitrogenous matter, due either to an excessive nitrogenous supply, or to a defective transforming capacity, or to an arrest of transformation by alcoholic drinks, or to an imperfect transformation of some material in the alcoholic drink. For there is found to be an accumulation of oxidizable materials which are not naturally assimilated, and do not become urea. Hence they remain in the system in the form of uric acid, which is convertible into urate of soda, the characteristic deposit of gout. At any rate, experience shows that in some subjects the disorder attends a highly nitrogenized diet, sedentary habits, immoral self-indulgence, and a free indulgence in the heavier kinds of wine and beer. Even intellectual pursuits, by working the brain without exercise of the limbs, contribute to the development of gout. There is therefore, perhaps, no disease in which properly chosen and well-regulated diet and hygiene are of greater importance.

Those, then, who inherit a predisposition to this disorder, or who exhibit premonitory symptoms, or who have actually suffered from it, should abstain from rich living. The children of gouty parents should be accustomed to eat a large proportion of vegetables, so as to acquire a taste for them, and be habituated to the digestion of them. Oatmeal porridge for breakfast, butter-milk for drink, and a very moderate proportion of meat at any time, should form their diet while growing. When years of maturity are reached the diet should be simple, that temptation to excess may be avoided ; limited in nitrogenous material ; consisting largely of vegetables, especially if the habits of life be inactive. Meat should be eaten only once a day; soles, whiting, and cod, mutton, tender beef, fowl and game, are suitable. Salmon, veal, pork, cheese, and highly seasoned or made dishes, pastry, greasy or twice-cooked meat, raw vegetables, articles which cause eructation or other symptoms of dyspepsia, and anything likely to lead the patient to eat more than is strictly moderate, must be avoided. The gouty person should be even more abstemious with regard to drink than to food, altogether avoiding sweet beer, strong and sweet wines. Port is to be particularly eschewed. The lighter wines, such as dry sherry, claret, burgundy, hock, or dry champagne, may be taken by some persons in moderation; but if the gouty predisposition established even these will bring on a paroxysm. Stout, porter, and old ales are almost as injurious as port. The lighter beers act in the same manner as the lighter wines. Pure spirits, however, diluted with water, do not disagree with those who suffer from gout. Still it would be wise to make the experiment of total abstinence from alcohol for three or four months, except a little weak claret and water at dinner. If at the end of the period weight is not lost, the habit of abstinence should be permanently adopted. If alcohol be recommended by the medical adviser, a small wine-glassful of pure spirit in a bottle of soda water may be taken once a day, either at dinner or bedtime. Those advanced in life and those whose health has been much enfeebled may need stimulants; but each case must be considered by itself, and treated according to its speciality.

DIET FOR GRAVEL AND STONE.

Patients having a predisposition to the formation of stone, especially if they have passed gravel with their urine, require medical treatment and careful supervision to correct the tendency; for although such treatment will not remove a stone of any size, homœopathic remedies will aid in the expulsion of sand or gravel, and also correct the tendency to such formations. But in addition to the employment of medicines, attention to regimen will be of considerable service. A reference to the varieties of stone, and what produces it, will indicate those ingredients of food that should be avoided.

There are several kinds of vesical calculus; but the most common are the uric or lithic, the phosphatic, and the oxalic.

Uric acid forms the nucleus of most urinary concretions, and many entirely consist of it. The small red grains, like cayenne pepper, called *red gravel*, and the brown lumps of stone are due to the excess of this acid. It exists in a normal condition of the urine, but is only deposited when excessive. This excess is closely related to the diathesis of gout. Indeed, the uric acid condition often alternates in the same individuals with gout; even in generations this may be observed, gout manifesting itself in one, gravel in the second, and gout again in the third. This is the most common variety of stone, and may occur at any age. The great object, then, in treating this disease must be the correction of the diathesis and the prevention of the deposit of uric acid, where this diathesis is known to exist. Where gout is known to exist in a family, and gravel is at any time observed in the urine, preventive measures should at once be taken, without waiting for the actual presence of those symptoms which only occur at late periods of the disease. All then that has been said in other parts of this work on the dietetic treatment of rheumatism and gout may in all cases be appropriately considered with reference to stone. Indeed the strict observance of precautionary regimen is the more urgent in this case, inasmuch as stone is more painful and dangerous than either gout or rheumatism.

Phosphatic salts exist in the urine when in a healthy condition, but are then held in solution. Should the urine, however, be deprived of its normal acidity by inflammation of the bladder or kidneys, due to an anæmic or broken-down state of the constitution, phosphatic gravel may be deposited. It may also form a concretion around some irritating substance in the bladder, as a uric acid stone. This form occurs chiefly in the aged.

Oxalate of lime never occurs in healthy urine, it is always a morbid product. Properly speaking, there is no gravel or sediment; the particles of oxalate float as crystals in the urine, or subside if it be allowed to stand but not in large quantity. When observed in children this form of gravel occurs in those that have been brought up in the country, but have been underfed, are pale, feeble, and suffer from disturbed sleep, acidity, etc. It seems to be occasioned by their eating too large a quantity of acid fruits and bad vegetables, such as rhubarb, sorrel, or tomatoes, and drinking hard unboiled water. It does not appear to be necessary that the food taken should contain oxalic acid, for by fermentation other organic acids taken into the system may be converted into the oxalic. When the oxalate is found in the urine of adults it appears to be consequent, on feeble powers of assimilation and exhaustion of the nervous system from over-work, anxiety, or excesses; on frequent attacks of gout, or on exposure to damp, cold, want of fresh air, and a low unvaried diet.

In the treatment of these different forms of the disease, it is obvious that first and foremost all avoidable causes must be removed; high living, alcoholic liquors, insufficient exercise on the one hand, overwork, anxiety, and excesses of all kinds on the other. Occasional abstinence from animal food for a time is advantageous, except when the oxalic diathesis exists, then it is necessary to allow a generous animal diet of simply-dressed and plain nourishing meat. Restriction must be placed upon (1) *sugar*, in whatever form or combination this substance is presented; (2) *fatty matters*—butter, cream, and fat meat, whether simply cooked or in the form of pastry; (3) *alcoholic beverages*, especially in the form of sherry, port, and the stronger wines, strong beer, champagne, &c. But a small quantity of pure spirits and water taken with substantial meals does not usually disagree, if there be any condition that indicates the necessity for taking them. Tea and coffee must also be taken in moderation. Abstinence from these substances is recommended on the ground that the labour of the liver will thus be greatly lightened, and correspondingly the vicarious work of the kidneys will be diminished. Succulent vegetables and fruits when cooked should be preferred. Lemon juice is corrective. But rhubarb, sorrel, apples, pears, and other acid raw fruit and vegetables should be avoided. Water-cresses and lettuces are the least objectionable, because they correct any scorbutic tendency of the blood, and act as sedatives to the urinary organs. Milk diet and frequent draughts of pure soft water are also recommended. Filtered rain, or distilled water, rendered alkaline by soda or caustic potash, has a great solvent power, and may be taken to the extent of one or two pints daily. Indeed, removal to a locality where pure soft water can be procured is often alone curative.

The explanation of this value of water treatment is that from drinking but little fluid the urine becomes concentrated and acid, and thus irritates the mucous membrane ; while drinking more water the urine is diluted. And not only is there a real and substantial benefit through the diminution which the water effects as a diluent in the irritating qualities of the urine, but a still greater benefit is realized in the flushing and cooling of the congested liver which is usually associated with the state denominated *lithiasis*, and in a larger proportion of cases stands in the relation of cause to effect. It is quite open to question, whether the alkaline waters that are frequently recommended do not confer benefit as diluents rather than as medicaments. At any rate, we know that the free drinking of pure soft water is of priceless advantage.

DIET FOR DYSENTERY.

In Dysentery, Diarrhœa, inflammation of the bowels, and Enteric fever, it is essential that scrupulous attention be paid to the diet. By maintaining the recumbent posture, and abstinence from all but the simplest food, the bowels are kept at rest, and opportunity is afforded for soothing inflammatory symptoms. The food selected should consist only of articles which are known to exert the least stimulant and irritant action on the mucous membrane and muscular fibres. Such are cold water, toast water, gum water, barley water, *milk*, soda water and milk, isinglass, *rice*, arrowroot, and cocoa; then come broths, ripe grapes, and other liquid forms of food; all to be given cold or cool. When recovery has considerably advanced, stale bread, eggs, white fish (particularly sole and whiting), white-fleshed poultry, fresh game, and tender meat may be taken in the order recited. But the return to solid food must be gradual. Acid fruits, succulent vegetables, salted, dried, and smoked meats must be avoided; a mealy potato may be allowed with caution. In *chronic cases* beef tea and other animal broths may be taken; milk and soda water, or milk and lime water should be given according to the requirements of the case. Frequently, too, a change to a dry, mild, equable climate is necessary.

DIET FOR CHOLERA.

DURING PREVALENCE.—Whenever Cholera is epidemic it behoves all persons to be very careful of their health, to be scrupulous about sanitary and hygienic matters, and to take only wholesome and suitable food. Every one should abstain from any article of food (whether animal or vegetable) which may have previously disordered his stomach, no matter how nutritious, digestible, or safe to others; and avoid all manner of excess in eating and drinking. A light, unstimulating diet should be taken, but food difficult of digestion eschewed—such as pickled salmon, lobsters, raw vegetables, sour and unripe fruits, cucumber, salads, pickles, &c. Wholesome varieties of ripe fruits, whether in their natural or cooked state, and vegetables plainly cooked may be taken in moderation by those with whom they agree. Water for all domestic purposes should be boiled and allowed to cool; drinking water ought to be filtered as well as boiled, as it is quite possible it may hold in solution the material poison of cholera, which would be destroyed by boiling and filtering. Late suppers are unsafe, for if a person is overtaken by the disease in the middle of the night with a full stomach, the case is generally a serious one.

DURING ATTACK.—In every case of cholera, complete *abstinence* from even the very lightest kind of aliment should be inexorably enforced from the moment that the nature of the disease is ascertained till convalescence has become decided; in the observance of this rule consists the very essence of successful treatment. The plan of complete abstinence from food has not invariably been adopted by all ranks of the medical profession; and this may account to some extent for the excessive mortality from cholera during some epidemics. Relapse, with alarming effects, has followed from the administration of a little beef-tea or brandy and water, or milk and water. When favourable reaction is begun, brandy, beef-tea, arrowroot, or other "nourishment," instead of stimulating the patient back to health, will only arrest reaction and send him back to death. It is egregious folly to attempt to force the exhausted alimentary organs to perform a physical impossibility, viz., prematurely digest food. None is required, and stimulants are worse than useless. Ice may be given freely, to be dissolved in the mouth or swallowed; iced water is also refreshing; enemata of warm milk, often repeated are beneficial. When the favourable symptoms are decided, farinaceous preparations may be given, but only in small quantities. In due time broths and soups may follow, but great care must be taken not to arrest recovery by injudicious feeding.

DIET FOR CONSTIPATION.

By constipation is meant the condition due to a collection or impaction of excrement in the rectum—the residuum of the various processes concerned in the nourishment of the body,—occasioning irregularity in the evacuations from the bowels, increase in their consistence, and often a sense of fulness and tension in the bowels and surrounding parts. It is that which is consequent on the imperfect discharge of intestinal function, which attends derangement of the whole system, and not of the intestinal canal alone. But reference is not herein made to the deficient evacuation which is due to an anæmic condition or to old age.

In very many cases costiveness depends on some faulty habit in the patient, the regulation of which will probably suffice to remove the inconvenience. Sedentary habits, drinking too much astringent wine, such as port or Burgundy, or black tea, dissipation, the exclusive use of white bread, taking food too dry and destitute of succulent vegetables, neglect of the calls of nature, and the habitual use of aperient medicine, are faults which induce constipation. If these be corrected the disorder will generally disappear. But more precise information may be given with regard to food, for costiveness may to a great extent be treated by judicious dieting of the patient.

All superfluous food that has the property of solidifying the excretions and arresting evacuation must be relinquished. Meals should be taken with regularity three times a day, animal food eaten sparingly, but succulent vegetables and ripe fruits freely. As a rule, persons eat too much and too often. If the stomach be overloaded the food will be imperfectly digested; there will consequently be a larger quantity of fæces, and thus the bowels will be overloaded also. Franklin's rule, "to leave off with an appetite" is a good one. By doing this, in ten minutes the appetite will have departed. Coarse Scotch oatmeal porridge, made in the Scotch way, by adding the meal gradually to the water till thick enough, and eaten with treacle, should form part of the breakfast. *Brown bread should be preferred to white.* It should not be eaten new; it may be taken for a fortnight at a time, and then temporarily changed for white bread known to be free from alum. If brown bread be not eaten exclusively, a little should be taken with every meal; its effects will thus be more uniformly distributed through the alimentary canal than if only taken occasionally. White bread, when eaten, should be stale; hot rolls, muffins, crumpets, tea-cakes, and spongy buttered toast are not allowable. Bread and potatoes, and indeed all farinaceous food, requires to be thoroughly masticated and mixed with saliva, as, correctly speaking, digestion begins in the mouth. Of meats, beef and mutton, chicken and game, may be eaten in moderation. Bacon is the most soothing of fats to the digestive canal, and may be eaten freely. This, or two tea-spoonfuls of salad oil taken at bed-time will prevent that drying and hardening of the contents of the bowels which causes impaction and consequent inconvenience. Pork and veal are most indigestible meats; also boiled salt meats, wild duck, and goose.

Green vegetables, such as spinach, turnips, greens, Brussels sprouts, green artichoke, and asparagus; also the heads of cauliflower and broccoli, may be eaten freely. Lettuce, water-cress, and dandelion are also useful, eaten raw. Care must be taken that potatoes are thoroughly boiled and mealy, while new, hard, waxy ones must be avoided altogether. Roast apples, stewed pippins, and stewed prunes are much better than pastry. Figs can be eaten, if moist and fresh, or in a pudding. Rhubarb, gooseberries and other ripe fruits in season, or preserved, may be taken freely. Condiments, pickles, melted butter, highly seasoned sauces, woody vegetables, such as celery, and cheese must be avoided by all costive subjects, Of wines, the white sorts are best, such as Chablis, Sauterne, Capri, and Somlau. Red and brandied wine and spirits should be eschewed, especially by those troubled with piles. A light wholesome ale may be taken by persons of outdoor active habits, but not by the gouty or those suffering from piles. Curds and whey are perhaps suitable when the gastric juice is deficient, as the previous conversion of milk into curds relieves the stomach of its first digestive process.

For tea and coffee, cocoa made from the nibs may be substituted with great advantage. Pure, soft water is a valuable accessory both as a drink and for use by enema. A tumbler of water taken while dressing is very serviceable, or some may prefer a drink of weak clove-water the first thing in the morning,—a tumbler of water made spicy by pouring boiling water overnight on a few cloves, and letting it stand till morning.

DIET IN WORM AFFECTIONS.

It should be distinctly understood that these parasites are not found when the alimentary canal is in a healthy condition; they require thick mucus for their home and nourishment, and unless this be secreted they cannot exist. There can be little doubt that their presence occasions excessive secretion, but there must be a previous secretion in which they are developed. In strumous constitutions there is a tendency to this excessive secretion. Food in a semi-assimilated state also favours their development. When worms are known to exist, measures should not only be taken for their expulsion, but also for the correction of that unhealthy condition of the alimentary canal which favours their existence. Injections expel them, but only medicinal and hygienic treatment can be relied on for improving the patients health, and preventing the reappearance of the parasite. Open waters should not be drunk or used in the preparation of food without being previously boiled or filtered; raw or underdone meat, especially pork, ham, bacon, or sausages, should be avoided; fruits and vegetables, such as lettuce, watercress, &c., eaten raw, should be first washed in salt and water and then fresh water and examined; for by eating raw unwashed vegetables the eggs of worms find entrance into the body. Cooks and butchers are more liable to be affected with tapeworm than other persons; and in countries where uncooked flesh, fowl, or fish is consumed, intestinal worms abound.

To correct the excessive and morbid intestinal secretion considerable changes of diet are also generally necessary. The food should be taken only at regular hours, and selected with special reference to its digestibility. It may include properly cooked animal food—mutton, beef, fowl, and white fish. Cakes, pastry, sweetmeats, sweet made dishes, new, waxy, half-cooked potatoes, butter, veal and pork must be forbidden. Salt, as a condiment, should be taken freely with the food, but salted meats should be avoided.

The following scale of diet is recommended by Dr. Eustace Smith for a child over two years of age, to be given in four separate meals in the course of the day:—

"*First Meal.*—Fresh milk diluted with a third part of lime-water. A small slice of toast, or of dry stale bread.

"*Second Meal.*—A small mutton chop, or a slice of roast beef or mutton, without fat; dry toast or stale bread.

"*Third Meal.*—A cup of beef-tea or mutton broth, free from grease; the yolk of a lightly-boiled egg; dry toast.

"*Fourth Meal* (*if necessary*).—The same as the first. It is not always easy to persuade children to submit readily to the deprivation of starchy food, for which, and especially for potatoes, there is often in these cases a great craving. So long, however, as a slimy appearance of the evacuations continues to be observed, the above diet should, if possible, be adhered to. When potatoes are once more allowed, they must be well boiled, and should be afterwards carefully mashed with a spoon. *Steaming* is generally the best method of cooking potatoes. Gravy may be poured over them before they are eaten. In cases where the appetite is lost, and there is disgust for food, children often show an especial reluctance to take meat, which it is very difficult to overcome. A small bird, as a lark or a snipe, will, however, often tempt them, for their fancy is pleased by the idea of eating a whole bird, and this means frequently succeeds when all others fail.

"The above scale of diet need not be literally followed in the case of all children troubled with worms, but may be varied according to circumstances. In general, three meals are better than four; but whichever arrangement is adopted, no food should be allowed between the meals."

DIET FOR DIABETES.

The best treatment of this dire disease is at present open to question; but it is agreed on all hands that it involves very careful attention to diet. For the most remarkable, and at the same time the most important pathological character of diabetes is the misappropriation of food required for the nourishment of the body, by converting it in a very direct manner into a form of sugar, which is excreted in the urine. It therefore becomes essential to deal both with the diseased condition of the secreting organs, most probably the liver, and with the character of the food from which the sugar is secreted. If the food be such that it cannot be converted into sugar by the diseased glands, organically diseased or functionally disordered, it is obvious that great gain is effected, not only by the suppression of a symptom, but also in the correction of a condition; for the urine being less saccharine, the blood is less saccharine, less impoverished, less unfitted for the purposes of nutrition.

For the dietetic treatment of diabetes we give the preference to Dr. Donkin's method. As soon as the actual existence of the disorder is known, an exclusive regimen of *skim milk* is prescribed. And it *must be exclusive* so long as any traces of sugar are found in the urine. *All cream* must be very carefully *removed.* Beginning with four to six pints on the first day, the quantity must be increased gradually to from eight to twelve pints daily, according to the age, sex, size, and condition of the patient. *In no instance should twelve pints be exceeded;* and if more than seven or eight be given, the remainder should be taken at separate meals in the form of curd produced by essence of rennet. The skim milk may be taken cold, or at about 100°, but *it must not be boiled.* Its specific gravity should never be below 1·035; it is better at 1·040. The daily allowance must be divided into regular meals. The curative power of this skim milk diet is altogether lost if anything be added to it. The abstinence thus imposed is unquestionably very trying to the patient, but it is the condition on which his life is lengthened. For his encouragement it may be recorded that Dr. Donkin affirms from his ample experience that, provided there are no complications, great relief, if not cure, may be expected from this treatment. As a general rule, it will remove the sugar from the urine, and completely remove the disease in from twelve days to five or six weeks, if only the hydrocarbons of the food are changed into sugar, and in some cases if the albuminates are also thus converted. If this stage is somewhat far advanced, and the disease is of long standing, and attended with much emaciation, it will be arrested in its course and held in check, though not absolutely cured. It should, however, be remarked, that if after the expiration of a week there is no reduction of the specific gravity and sugar of the urine, the disease is not amenable to skim milk or any other kind of treatment. On the other hand, if the symptoms are ameliorated, and the patient gains strength, there is much encouragement to proceed; and when the treatment has been successful, the skim milk diet should be rigorously continued from a fortnight to six weeks after the disappearance of sugar from the urine, that convalescence may be confirmed.

Great stress must also be laid on the careful selection of ingredients in the transitional diet to be adopted when the exclusiveness of skim milk diet may be lessened, and some approach to ordinary fare may be permitted. Skim milk and curds must still be staple articles; but, in addition, one or two moderate meals of lightly-cooked *lean* chop or steak, or of roast mutton or beef, with *green*, *non-starchy* vegetables, are allowed. The vegetables which Dr. Donkin thinks may be permitted are spinach, lettuce, endive, mustard and cress, the young leaves of *nasturtiums*, the green leaves of *scallions*, the tops of radishes, greens, turnip-greens, French beans and scarlet runners in a very young condition before seed is formed. These are simply not forbidden as highly pernicious, whether it is judicious to take them is another matter. Beef tea and mutton broth, from which the fat has been removed after cooling, and without barley or vegetables, except the green leaves of the leek, may also be taken in moderate quantity once daily. Should the progress be favourable, and the urine continue free from sugar, the following fish may be allowed at the principal meal, which should be early in the day:—cod, ling, whiting, haddock, and skate. Their livers, however, must be avoided, as also must oysters, salmon, salmon-trout, herrings, and other oily fish. In fact, all fatty or oily substances, and all vegetable articles of food and drink containing starch and sugar must be avoided with the most scrupulous care, for relapse at this stage will frequently prove serious if not intractable. The chief articles of food prohibited are fat, oils, bacon, pork, butter, cream, milk, cheese, and yolk of eggs, white or brown bread, pastry, flour in every form and any quantity, macaroni, vermicelli, rice, sago, tapioca, arrowroot, peas, pea-meal, beans, bean-meal, Indian corn-flour, potatoes, full-grown French beans and scarlet runners, turnips, carrots, parsnips, artichokes, cauliflower, cabbages, Brussels sprouts, asparagus, seakale, cucumber, vegetable marrow, and all kinds of fruit in any form, except olives in pickle. All saccharine drinks must also be avoided, including ale, beer, stout, porter, wines ; if alcoholic drinks be *necessary*, the diabetic may have the very best pale French brandy, or finest Scotch whisky, or good claret or Carlowitz, but they are generally objectionable. Cocoa free from fat and sugar, tea or coffee without sugar, may be allowed for breakfast. The period during which it will be necessary to adhere to this transitional diet varies very much.

A more permanent dietary is developed out of the transitional by the addition of a much greater variety of animal and vegetable food. But pork, bacon, and cheese, bread, pastry, and substances into which flour enters, all starchy products, and sugar in every form must still be most carefully avoided. Again and again does Dr. Donkin repeat the caution that indulgence in prohibited articles, at least before a long and indefinable period has elapsed after convalescence, will most certainly be followed by a return of the disease, which then becomes more intractable than on its first invasion.

Dr. Pavy does not approve of an exclusive skim milk diet, but in his work "On the Nature and Treatment of Diabetes," he gives the following dietary.

Patients may eat.—Butcher's meat of all kinds except liver, ham, bacon, or other smoked, salted, dried, or cured meats. Poultry, game, shell-fish, and fish of all kinds, fresh, salted, or cured. Animal soups not thickened, beef tea, and broths.

The almond, bran, or gluten substitute for ordinary bread; eggs dressed in any way, cheese, cream-cheese, butter, cream, greens, spinach, turnip-tops, *turnips, *French beans, *Brussels sprouts, *cauliflower,*broccoli, *cabbage, *asparagus, *seakale, *vegetable marrow, mushrooms, water-cress, mustard and cress, cucumber, lettuce, endive, radishes, celery, vinegar, oil, pickles, jelly, flavoured but not sweetened, savoury jelly, blanc-mange made with cream and not milk, custard made without sugar, nuts of any description, except chestnuts, olives.

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* Those marked with an asterisk may only be eaten in moderate quantities, and should be boiled in a large quantity of water.

Must avoid eating.—Sugar in any form, wheaten bread and ordinary biscuits of all kinds, and rice, arrowroot, sago, tapioca, macaroni, vermicelli, potatoes, carrots, parsnips, beetroot, peas, Spanish onions, pastry and puddings of all kinds; fruit of all kinds, fresh and preserved.

May drink.—Tea, coffee, cocoa from nibs, dry sherry, claret, dry sauterne, burgundy, chablis, hock, brandy and spirits that have not been sweetened, soda water, Burton bitter ale, all in moderate quantity.

Must avoid drinking.—Milk, except sparingly, stout, ales mild and old, porter and stout, cider, all sweet wines, sparkling wines, port wine, unless sparingly, liqueurs.

Dr. Chambers, however, quotes with approval the following list of eatables compiled by M. Bouchardat, Professor of Hygiene in the University of Paris, who has studied the subject of Diabetes; and adds, "The *menu* has not been improved by any subsequent writers on the subject."

Injurious.—Sugar, bread of any kind, or pastry, rice, maize, and other starchy grains, potatoes, arrowroot, tapioca, among root products; sago among piths; among manufactured starches, macaroni, vermicelli, and semolina; of vegetable seeds, peas and beans of all sorts, and chestnuts; radishes, turnips, beetroot, carrots; all preserved fruits, apples and pears; honey, milk, beer, cider, sweet and sparkling wines, lemonades, and such like sweetened acid drinks.

Permissible.—Meat of all kinds, brown or white, boiled, roast, or grilled, and seasoned with any sauce pleasing to the palate, provided there be no flour or sugar in it ; all sorts of fish, shell-fish, and lobsters, eggs, cream and cheese, spinach, endive, lettuce, sorrel, asparagus, hop tops, artichokes, French beans, Brussels sprouts, cabbage (the last very good with pickled pork or bacon).

Salads of cress, endive, American cress, corn-salad, dandelion, lettuce, with a full allowance of oil, and hard-boiled eggs.

Fresh vegetable gluten, *i e.*, dough with the starch washed out, may be made into an agreeable dish, with grated Parmesan or Gruyère cheese and butter ; anchovy and Ravigote butter. For dessert, olives ; on high days and holidays, when the patient has begun to improve, some fresh summer fruit, of course without sugar. The wearing hunger may be much appeased by chewing cocoa beans.

For drink, a bottle and a half of good claret or burgundy may be taken in the day. Those who prefer it may take instead brandy and soda water, one part of the former to nine of the latter. Fresh beef tea is a capital quencher of thirst. Coffee with cream.

We have given these dietaries at length, because there is no disorder of the system more dependent on dietetic treatment than diabetes. As we have intimated, our preference is for the course prescribed by Dr. Donkin, in following which we have found no inconsiderable success when other treatment has failed.

As will be observed, the most serious privation is consequent on the prohibition of bread. It is most difficult to deny this to the patient, and yet it is preeminently injurious on account of its starchy composition. In order to meet the craving for it various substitutes have been provided. M. Bouchardat had contrived a bread made of gluten, but it was so little attractive to the eye and pleasant to the taste that few persons have cared to take it; they prefer to go without bread altogether. Dr. Pavy's almond biscuits are a far nicer substitute. The almond is baked for a short time, and thereby rendered brittle, so that it may be easily ground to powder. The flour thus obtained is prepared with eggs so as to form cake or biscuits. Dr. Chambers expresses the opinion that it is not wise to enforce a diet which is really intolerable to the patient; he would conciliate the stomach, appetite, and fancy into taking the greatest amount of animal food and oleaginous matter; and if the patient ate the heartier for having a biscuit, or crust, or glass of porter, or even a forbidden vegetable with his meals, he would deem it better to give him his way than to tempt him to break through all rules altogether by playing the truant. We, however, cannot approve of such concessions; we should recommend total abstinence from all forbidden articles as the surest way of avoiding temptation; we should strengthen the resolve to save life at all costs of self-denial, and prove the truth of the ancient saying, "All that a man hath will he give for his life."

Dr. Charteris has adduced some evidence to show that dieting is of less importance than the maintenance of the temperature of the lungs by preventing the access of cold external air. The temperature is maintained by wearing a respirator alone during the day, and covering respirator and nostrils with a knitted woollen cloth during the night. The following dietary is allowed :—Breakfast: eggs, fish, one pint of tea, and biscuits. Dinner: steak, cabbage, biscuits. Supper: tea, milk, biscuits. Three pints of milk during the day are also allowed. The biscuits must contain as little starch as possible in their composition.

A few hints may be given in connection with dietetic treatment. Patients should eat slowly and masticate their food thoroughly, take their meals frequently and moderately; for the digestive organs partake of the general weakness of the system, and cannot fulfil their functions so readily as when in health. Their powers should, therefore, not be taxed by quick and excessive eating.

The body should be kept warm by flannel next the skin ; gentle exercise in the open air should be frequently taken in fine weather ; the tendency to constipation should be counteracted by the use of suitable medicines.

DIET FOR BRIGHT'S DISEASE, OR CHRONIC ALBUMINURIA.

The function of the kidneys is to eliminate from the blood products that are useless, in the changes and assimilation of food, and materials that have become effete in the disintegration of the tissues, *i.e.* the waste matters of the body that do not pass through the intestinal canal or the skin. If these were allowed to remain in the blood they would poison it and produce death. When eliminated they constitute urea and pass off in the urine; when retained they cause uremic poisoning. If the kidneys are in an unhealthy condition, as in Bright's Disease, the urea is not eliminated. Now the amount of urinary matter to be thus eliminated obviously depends very largely on the nature of the food. Fatty, starchy, and saccharine matters throw no work upon the kidneys; their products, carbonic acid and water, pass off through the lungs and skin. On the other hand, nitrogenous food undergoes such a change in the system as to lead to the production of urea, and thus throws much work upon the kidneys. An animal diet which is the richest in nitrogenous matter yields double the amount of urea voided from a vegetable diet. The inference from this is that when the kidneys are diseased the less they have to do the better, and consequently the less should be the amount of nitrogenous food. Hence in Bright's disease only very digestible animal food should be taken, and that only in small quantities, while vegetable food should preponderate. Now although there is considerable difficulty in persuading those who are thus suffering to persist in a systematic milk diet, yet it offers the best chance for arresting the disorder. Schmidt says he has obtained the most brilliant results from an exclusively milk diet when all other treatment failed. It may be given cold or tepid, and from half a pint to a pint at a time. An adult will sometimes take as much as a gallon in the twenty-four hours. But in addition to a limitation of the nitrogenous supply which will be converted into urea, it is important to facilitate the removal of what exists in the blood as the result of disintegration of tissues. This effete matter fouls the blood. Hence the necessity for a copious use of water and watery drinks, which flow out readily by the kidneys, carrying with them such of the waste as may be soluble in water. This dilution will relieve the kidneys. The drinking of water is also the best means of preventing and relieving the dropsy which usually attends this disease. Alcoholic drinks are decidedly harmful. Alcohol is removed from the system by the kidneys ; if then the ordinary means of excretion be ineffective the alcohol remains and produces coma, and if it be partially eliminated, excessive labour is needlessly and injuriously thrown upon the diseased glands. For Bright's disease, then, the most suitable diet is a preponderance of vegetables, abundance of water, abstinence from alcohol.

DIET FOR SCURVY AND PURPURA.

Scurvy and purpura (though the latter is called *land scurvy*) are not the same disease, but analogous. Both are characterized by morbid conditions of the blood and capillary vessels, which cause effusions of blood of greater or less extent just beneath the skin and in other parts, and are followed by other symptoms. Both are amenable to dietetic treatment in conjunction with suitable medicinal remedies. Scurvy gradually supervenes on the continued use of a dietary deficient in vegetable acids. Its occurrence is greatly aided by general deficiency and limited range of food, exposure to cold and wet, and mental and moral depression. It has been deemed to be inseparable from long voyages, but has been proved to be preventible, and curable by means to be found in every inhabited country. It is very prevalent in Iceland, especially on the western coast, where the inhabitants depend chiefly on fishing, and where the pastures are limited in extent and inferior in produce.

The corrective is obvious, viz., the supply of those articles of food, *fresh vegetables, milk*, and good diet generally, which contain ingredients the absence of which has led to the diseased condition. Cabbage is perhaps the most valuable antiscorbutic we possess. In slight cases of scurvy or purpura, where bleeding from the veins is almost the only symptom, it is very successful both in producing a cure and in preventing other members of the family from suffering from it.

The vegetable should be fresh, if it has been kept, and then wetted to freshen it up again, it is not nearly so efficacious, and if fermentation has taken place it is positively injurious. The concurrent testimony of many observers shows that the potato is very efficient in *preventing* scurvy ; eight to twelve ounces a day are sufficient for this purpose. Oranges, lemons, limes, lettuce, onions, water-cress, mustard and cress, dandelion, grapes, may likewise be used as preventives. Vinegar, good lemon-juice, and other vegetable acids are also excellent anti-scorbutics. In severe cases, citrates, tartrates, lactates, and malates of potash should be used as drinks and added to the food. An ample supply of those acids, as well as of preserved vegetables, should be provided for ships which are engaged in war, or have to make prolonged sojourn where fresh vegetables cannot be obtained. The legal supplementary allowance in emigrant vessels is eight ounces of preserved potato, three ounces of other preserved vegetables (carrots, turnips, onions, celery, and mint), besides pickles, and three ounces of lemon-juice for each person weekly, and this is found to be sufficient to prevent the occurrence of the disease. The commencement of the administration of lemon or lime juice should not be delayed beyond fourteen days after putting out to sea.

DIET FOR FEVERS AND INFLAMMATIONS.

There was once an adage in vogue,—stuff a cold and starve a fever. That was when the feverish nature of a cold was not understood, and when the importance of sustaining the constitution when in a feverish or inflamed state was not recognised. The feeding of fevers is now generally acknowledged to be an important auxiliary in the treatment of them. Indeed, Dr. Graves said that he desired no higher posthumous praise than that he fed fevers. In this, however, there is nothing new, for the value of nutrition for those who were suffering from them was observed in the earliest times. Hippocrates was so decided in his opinion on this subject that in his treatise on the management of acute diseases he lays stress on the administration of wine and barley gruel, and describes how the latter is to be prepared. The time of dietetic revival is, however, but recent; for until the last generation it was considered necessary to starve out the devouring flame of fever or inflammation by refraining from feeding it; French physicians going to the extreme, by depriving invalids of food altogether. The reaction began when Dr. Graves maintained that to feed a fever was essential to its cure. Still, it must not be supposed that food is to be indiscriminately or outrageously given. "The great art of daily nourishing fever patients consists in giving a frequent, almost continuous supply of liquid nutriment, containing very soluble aliments in a dilute form."—(*Chambers.*) Stress must be laid on almost every one of these terms. The supply of food must be "frequent, almost continuous;" it must be liquid, requiring no effort of mastication, making as little demand as possible on the digestive functions; the aliments it contains must be of a concentrated character, of pure and highly nutritive quality, and yet "in a dilute form," in such a condition as to be very soluble by the digestive secretions, and easily assimilated by the vessels and glands. Such a supply excludes solid food, and large quantities of food at a time.

Pre-eminent in the treatment of fevers is the free allowance of pure cold water. The patient craves for it, and he may take it in frequently repeated mouthfuls, as it is nature calling loudly for a simple and cooling fluid. Milk is the most suitable food. It is what has been provided for the weakest organism, and contains all that is required for nourishment. It is the sheet-anchor in enteric fever. If half a quarter of a pint be given every hour, or a quarter of a pint, or even more, every two hours, a fair amount of nutriment will be imbibed. The administration of milk will, however, require watching, in case the acidity of the stomach should cause the formation and ejection of cheesy lumps. To avert this result, a little lime water or soda water may be added to the milk. Whey will be found refreshing and grateful; and sour buttermilk is not to be despised. Beef juice or jelly, mutton broth or beef-tea, with as small a quantity of the meat fibre as possible, may take the place of milk in many instances. If these are regularly and freely given, the danger of starvation is averted, the emaciation which attends convalescence is lessened, and the occurrence of serious secondary disorders is rendered less probable. In all cases it is extremely important that from the first, small quantities of very nutritious food should be given regularly and persistently.

Barley water, water slightly sweetened, toast water, weak lemonade, gruel, and extract of meat, are valuable variations of diet. When there is disrelish for food, or difficulty of swallowing arising from the arrest of the mucous secretions of the mouth and throat, the parched lips and tongue may be moistened by a little lemon-juice and water, or other agreeable fluid, a few minutes before food is taken. Sometimes the mouth is so foul with sordes that great attention is essential to keep it clean ; and it may be necessary to wipe it out frequently with a soft rag, moist with a weak solution of permanganate of potash. The cleaner the mouth is kept the better, and it should be invariably cleansed before giving food. Sucking and swallowing *small bits of ice* is both grateful and useful. If prostration, feeble and irregular circulation, or complications indicate it, wine or brandy must be given, but the quantity of stimulants, and indeed of nourishment, must be regulated by the character of the pulse and the condition of the nervous system. Some allowance of alcohol is indicated when there is great prostration of strength, or trembling of the hands, or quivering of the voice, or low muttering delirium when the patient is left quiet. It should always be borne in mind that alcoholic drinks are not food, afford no nutrition, and cannot take the place of food. They are stimulating auxiliaries, but can never render nourishment unnecessary. Of wines, good port, burgundy, and champagne are best; of spirits, brandy and whisky are not to be despised. For intermittent fever (ague) there is no wine like fine burgundy. Roast apples, grapes, strawberries, oranges, pomegranates, lemons, and other ripe pulpy fruit in season may often be given, in the absence of diarrhœa, provided all skins and pips be rejected. They are cooling to the mouth, and pleasant to the taste. They are all more wholesome before other food than after. But at a certain stage of enteric fever, fruits are not admissible, in consequence of the danger of extensive ulcerations, which are so common in this disease.

Fresh eggs are highly nutritious, and if taken raw or beaten up with milk or water, are quickly assimilated. They may also be beaten up with a little wine, if stimulants are advisable. If, however, the eggs be stale, or if the albumen be hardened by cooking, or if from the state of the stomach the digestion be protracted, eggs will do more harm than good. Generally speaking, they had better be avoided till the gastric functions are restored during convalescence.

As a rule, the temperature of food in sickness should be as nearly as possible that of the natural heat of the body,—about 98°. But in cases of fever or diarrhœa, or where there is considerable nausea, the cooler it is the better. When there is inflammation of the stomach or bowels, or where vomiting is present, the food should invariably be in a liquid form, given quite cold, and only a few spoonfuls at a time. A very little pepsine may be helpful in such cases.

When there is considerable prostration, when the patient cannot be raised without danger of fainting, or when he ought not to be moved from the recumbent posture at all, as in enteric fever or cholera, the liquid food is best given by a china feeding-cup, and not by a spoon; for taking food by literal spoonfuls is often a source of irritation to the sufferer, who prefers being left alone and without food than troubled to take it in driblets. But the same vessel, or even another of the same appearance, should not be used for both food and medicine.

Sometimes it is necessary to give food otherwise than by the mouth, as at the height or latter end of acute fevers. Enemata then become necessary, and life may often be sustained for some time by nutritive injections given by this means. Food must in such cases be blood-warm, diluted, and slowly injected as far as possible. If the injection be farinaceous, as barley-water or gruel, the addition of a little diastase (in the shape of malt extract) will to some extent supply the deficiency of saliva. If it consist of broth or beef-tea, the addition of a little pepsine will supply the lack of gastric juice. Not more than a quarter of a pint should be given at a time.

DIET FOR FEVER PATIENTS. — Barley water; water gruel; rice gruel; toast water; white wine whey; rennet whey; alum whey; lemonade; linseed tea; arrowroot; egg nogg; egg soup; panada; chicken broth; mutton broth; beef tea; malt tea; tea; biscuit and milk; bread pudding; rice pudding; batter pudding; mashed potato; enema.

DIET FOR HEART DISEASE.

A diseased heart is a feeble heart, and its impulse is slow; hence the circulation of blood is sluggish, and the absorption of liquids through the mucous membranes is retarded. The consequence of this is that liquids are slowly absorbed by the stomach, and if any large quantity be taken at once, this occasions considerable inconvenience, and interferes with the digestion of solid food. The distention of the stomach also interferes with the action of the heart, already too slow and laboured.

In heart disease, then, only a moderate amount of liquid should be taken at once. Dry diet is accompanied by less discomfort. Soup should not be taken at the commencement of dinner; drink taken during the meal should only be sipped, and should not be cold. Between meals, thirst should be quenched by sips. Dry diet is especially indicated if the sufferer be corpulent, particularly if fat has accumulated about the chest. The diet should be nitrogenous and nourishing. If dropsy supervene, it will be necessary to aid the functions of the kidneys and skin by imbibing a considerable quantity of water; but as soon as the dropsical tendency is arrested, the dry diet should be resumed.

DIET FOR ANEURISM.

In the treatment of aneurism two factors are essential,—rest in the recumbent posture, and light, unstimulating diet. The object is to render the blood unnaturally stagnant and unnaturally coagulable; and this is best secured by keeping the patient in bed and restricting his food. An artificially anemic condition is thus produced; the blood is rendered deficient in red corpuscles (which do not coagulate) and rich in *liquor sanguinis* and white corpuscles. The result is that fibrin is increased, coagulation takes place, and the aneurism is obliterated, while the force of the heart's action is diminished. This method of treating the arterial tumour is commonly known as Valsalva's, but it has been employed very effectively by Mr. Tufnell. The recumbent posture must be rigorously maintained. The diet should be restricted to three meals a day, taken at regular intervals, and consist of two ounces of white bread and butter, with two ounces of cocoa or milk, for breakfast; three ounces of broiled or boiled meat, three ounces of potatoes or bread, and four ounces of water or light claret, for dinner; and two ounces of bread and butter and two ounces of milk or tea for supper,—in all, ten ounces of solid and eight ounces of fluid food in the twenty-four hours. By such limited fare the volume of blood and the activity of its circulation are reduced, and the coagulation of fibrin within the sac is favoured.

DIET FOR BALDNESS.

As the cause of this malady is undoubtedly exhausted nutrition, we must turn our attention to the restoration of the nutritive functions as the first step towards its cure. Abstinence from all stimulants is an important feature in the diet, for it is a fact that reparative power, especially in baldness, is encouraged by total suspension of wine, beer, &c., good wholesome food taking their place. *Fat* is essential, it being the great nerve-restorer, besides supplying the scalp with the lacking material : it may be taken in the form of butter, cream, cheese (if it can be digested), cod-liver oil, and milk ; should the latter be found too heavy, it may be taken in the form of *café au lait.* Bacon for breakfast is also useful, its value consisting in the quantity of *fat* which it contains in a compact form; and when *broiled* in slices, which secures thorough cooking, it rarely disagrees even with the most delicate stomach. The lean portions are of less value, and when too highly cured, bacon becomes less amenable to the gastric juices.

Stimulation to the scalp is also useful. We approve of the American remedy only in part : "Use brandy externally until the hair grows, and take it internally to clinch the roots."

When hair begins to grow again after failure, it is soft and downy, like an infant's; it is well, therefore, to strengthen it by shaving; hence Dr. Godfrey's advice, "It is a good plan to mow the cranial lawns once a fortnight, until stubble takes the place of down."

Diet for Diphtheria.

One of the characteristics of this disease is great prostration. To counteract this, the strength of the patient must be well sustained by nourishment from the very commencement. He must therefore be urged to swallow in spite of the pain which this act generally occasions. Eggs beaten up in milk or in brandy and water with sugar; beef-tea slightly thickened with rice or pearl barley; arrowroot or sago, with port or sherry. Sudden extreme prostration requires wine or brandy. A tea-spoonful of pure glycerine every three or four hours, and as much wine as the patient can take short of intoxication, will do much to sustain strength. Alcoholic stimulants are often extremely serviceable in diphtheria; a rapid pulse is no counter-indication.

If vomiting occur, constantly sucking small pieces of ice tends to allay it. It also affords comfort to the patient by arresting the constant hawking up of mucus, which is usually abundantly secreted. As a diluent, the melted ice promotes the action of the kidneys.

Children will sometimes persistently refuse to swallow because it gives them pain, and they cannot understand the necessity for bearing the pain in order to nourish the system. In such cases nutritive injections must be employed. About an ounce of fluid should be given at a time. The enemata should be commenced (if necessary) as soon as the true character of the disease is known, and repeated every four hours.

DIET FOR CORPULENCE OR OBESITY.

Some years ago considerable interest was excited by the publication of a method of treatment by which Mr. Banting had succeeded in reducing his cumbersome corpulence to a condition of health, and his weight from 14 stone 6 lbs. to 11 stone 2 lbs. There was nothing in this result that might not have been physiologically anticipated from the dietetic measures he adopted. But he brought into prominence the fact that such measures will prove most effective without medicinal aid. It has been judiciously pointed out by Dr. Pavy that the reduction in weight is not only due to the changes made in the elementary constituents of the diet taken, but also in its quantity; and that it is unsafe to adopt his scale without discrimination, for it barely comes up to what is regarded as hospital "subsistence diet."

Mr. Banting states that his original dietary table comprised "bread and milk for breakfast, or a pint of tea with plenty of milk, sugar, and buttered toast;

meat, beer, much bread, and pastry for dinner; the meal of tea similar to that of breakfast; and generally a fruit tart or bread and milk for supper." The chief feature of this is the exclusion of vegetables and alcoholic drinks. Subsequently he adopted the following scale :—

Breakfast at 9 a.m. ; five to six ounces of either beef, mutton, kidneys, broiled fish, bacon, or cold meat of any kind, except pork or veal ; a large cup of tea or coffee (without milk or sugar), a little biscuit, or one ounce of dry toast ; making together six ounces of solids and nine of liquids.

Dinner at 2 p.m. ; five or six ounces of any fish except salmon, herrings, or eels ; any meat except pork or veal ; any vegetable except potato, parsnips, beetroot, turnip, or carrot ; one ounce of dry toast ; fruit out of a pudding not sweetened ; any kind of poultry or game ; and two or three glasses of good claret, sherry, or madeira; champagne, port, and beer forbidden ; making together ten to twelve ounces of solids and ten of liquids.

Tea at 6 p.m. ; two or three ounces of cooked fruit, a rusk or two, and a cup of tea without milk or sugar; making two to four ounces of solids and nine of liquids.

Supper at 9 p.m. ; three or four ounces of meat or fish, similar to dinner ; with a glass or two of claret or sherry and water ; making four ounces of solids and seven of liquids.

Sugar, says Mr. Banting, is the most active of all fat-forming foods ; for he has repeatedly observed that five ounces of sugar distributed over seven days (less than an ounce a day) augmented his weight nearly a pound by the end of that time. Other prohibited substances do not produce such obvious results ; but he made it a rule to avoid all roots or vegetables grown underground, all fat, and all farinaceous matters, eating bread only when it was properly toasted.

For athletic exercises it is often found necessary to reduce the weight and size ; and from the regimen adopted in training, some hints may be gathered for the guidance of those who are obese. For athletes the following dieting has been recommended :—Breakfast at 8 ; the lean of mutton or beef without fat or skin ; dry toast, biscuit, or oat-cake ; a tumbler of claret and water, or a large cup of tea without milk or sugar, or with a slice of lemon. Luncheon at 1 ; bread or biscuit, Dutch cheese, salads, roasted apples, radishes ; after eating, a little water, claret and water, or unsweetened lemonade. Dinner at 5 or 6 ; fresh meat of any kind except pork and veal, and without fat or skin ; green vegetables, but no potatoes, pastry, or made dishes ; a jelly, lemon ice, or roasted apple; claret and water during dinner, one glass of madeira or sherry after it.

For the reduction of general obesity the preceding dietaries may therefore be thus epitomized :—

Admissible :—Lean meat, poultry, game, eggs, milk in moderation, green vegetables, turnips, succulent fruit, light wines, dry sherry, bitter ale, and spirits, all in great moderation; brown bread in moderation, wheaten bread in greater moderation, digestive biscuits, gluten biscuits.

Prohibited:—Fat in every form, butter, cream, sugar and sweets of every kind, pastry and puddings, potatoes, carrots, parsnips, beetroot, rice, sago, and other farinaceous articles, porter, stout, and sweet ales, port, and sweet wines.

Exercise and baths are essential adjuncts to dietary treatment in the reduction of corpulence. But the necessity for carefulness in the diet is increased by the fact that a corpulent person cannot usually take exercise sufficient to walk off the diet. If violent exertion be exhausting, digestion is interfered with; and at the same time the fat that unavoidably exists in the meat is assimilated, so that the adipose tissue grows, while the muscular and nervous strength is diminished. Many stout persons are already active; and any considerable addition to their activity would add to their discomfort, and possibly prove injurious. Hence the necessity for strict attention to regimen.

DIET FOR RICKETS.

Rickets is essentially a disease of mal-nutrition, and is not hereditary, as scrofula often is. It is a disease of early childhood, manifesting itself as early as the seventh to the eighteenth month, rarely after the twenty-fourth. Every organ of the body is implicated, although it is most manifest in the bones, which are deficient in calcareous elements. They are therefore gelatinous, soft, and yielding. This deficiency in the more substantial osseous particles is caused by improper diet, and is only to be corrected by supplying what is proper. Rickets does not occur in children who are kept too long at the breast, but among those that are weaned too soon. It is not because they are supplied with milk, but because they are fed too soon on meat and vegetables. It is never so common as in babies that are weaned before the teeth are sufficiently forward ; and fed on pap, potatoes, bacon, and beef. It occurs far too commonly in the great centres of population, where mothers are induced to neglect their children in order to go to work, and especially in large manufacturing towns, where they go to mills far too soon after babies are born. For rickety children nothing can take the place of milk,—first the mother's milk, if it be good ; next comes milk diluted with water, and sweetened with sugar of milk ; even skim milk is better than none at all. And the milk may form a large proportion of the diet after the age of infancy is passed. Cod-liver oil, animal broths, and fresh meat may then be given. The administration of a moderate quantity of finely scraped raw beef, made into a palatable sandwich, salted and peppered, is much to be recommended. *Malt* or *barley* food is specially suitable for rachitic children. It may be prepared in the following manner :—Four table-spoonfuls of *ground* malt should be boiled for ten minutes in a pint of water, the liquid poured off, and a pint of new milk added. The sediment from the husk, if finely ground, need not be removed, as it is very nutritious, and rich in bone-forming materials. Cod-liver oil has a specific action in this disease, but should only be given in small doses, ten to twenty drops at first, and the quantity gradually increased to a teaspoonful. During its administration the evacuations should be examined, for the appearance and odour of the oil in them are signs that the quantity should be reduced.

Diet in Hysteria.

In this disorder the diet should be a generous, varied, and highly nitrogenous one. Fish or bacon may be taken for breakfast, which will be generally more acceptable and better relished if a cold bath or spinal douche has been taken on rising. For the other meals the diet should be as nutritive as the digestive organs will permit without causing disturbance. But the chief point to be noted here is the disuse of wine, beer, and spirits. The daily consumption of alcoholic beverages, for the debility from which patients imagine they suffer, should be strenuously opposed, for this, instead of conferring benefit, only tends to confirm the worst symptom of the complaint. There is, further, danger to be apprehended lest the patient should in time learn to enjoy the pleasurable sensations yielded by alcohol so highly, that in the end she becomes an inebriate. A feeling of exhaustion or faintness from defective or perverted nervous supplies, may indeed be removed by stimulants, but the exhaustion quickly returns, and with it the temptation again to seek relief by the same means. It is most difficult to persuade the patient that the sensations of faintness or exhaustion are really aggravated by stimulants, and that if she will abstain from the delusive draught, and adopt rational methods of cure, nerve-power will return, and with it appetite and other normal functions.

"The best way of breaking off the habit of yielding to the perverted sensation which so insidiously cries for alcohol," writes Dr. Chambers, "is immediately and altogether to relinquish it. Terrible sometimes is the struggle, yet it is a bracing and ennobling conflict; whereas the long-continued daily annoyance of giving it up little by little is on the whole quite as painful, and is often enfeebling to the mind. Moreover courage is likelier to give way in a month than in a day."

DIET FOR DIARRHŒA.

In *recent* cases of *Diarrhœa* food should be given sparingly, consisting of light, non-irritating articles —gruel, rice, baked rice pudding, arrowroot, arrowroot biscuits, Neave's food prepared with an extra quantity of milk, and other farinaceous substances, which should be taken *cool.* The temperature of food is very important; cold milk and lime-water will often arrest *infantile Diarrhœa*, when warm milk would be useless. If severe sickness be superadded, all preparations of milk may have to be suspended for a few hours, and whey, veal-broth, Mellin's patent extract, water, or barley-water substituted. Raw meat, or juice, sometimes acts favourably in Diarrhœa of young children.

In *chronic Diarrhœa* the diet should be nutritious, but restricted to the most digestible kinds of food; mutton, chicken, pigeon, game, and white fish are generally suitable, if not over-cooked. Tender beef is not inadmissible in many cases. Pork, veal, and all tough portions of meat should be avoided. Starchy foods—arrowroot, sago, etc.—are insufficient for prolonged cases of Diarrhœa, but are improved by a mixture with good milk. *Old* rice, well boiled in milk, taken directly it is prepared, forms excellent nourishment. Raw or half-cooked eggs, and good sound ripe grapes in moderation, may generally be taken. Mucilaginous drinks—barley-water, gum-water, linseed-tea, etc., are the most suitable. Alcoholic stimulants may be necessary in some cases of Diarrhœa, but rarely, the best wine is good Burgundy. Beer never agrees. *Milk and lime-water* or scalded milk constitutes the best diet; in feverish conditions it may be iced; soda-water may be occasionally substituted for lime-water. Restricting a patient entirely to this diet is often alone sufficient to cure most kinds of Diarrhœa not dependent on any organic cause. Even in the latter case much temporary benefit is generally gained. The alkaline milk diet may be taken in small meals at regular intervals.

As important accessories to the above, the postural treatment of Diarrhœa, and the application of a moderately tightly fitting flannel roller around the abdomen are very valuable. Rest in the recumbent posture is especially desirable in acute cases.

DIET FOR DROPSY.

In acute Dropsy the diet should be similar to that in acute fever; in chronic Dropsy patients require nourishing diet to meet the exhaustion that commonly exists, but on account of that extreme feebleness, easily digestible food only should be taken. To allay the burning thirst often experienced, cold water is the best beverage; but any other that the patient desires, if not positively injurious, may be taken. Water may be said to be a real restorative, and may be taken *ad libitum*, for it increases the amount of fluids excreted to an extent greater than its own bulk; it also tends to improve the appetite and strengthen the pulse, while it diminishes the dropsical collections. It will thus be seen that the popular notion that drinking water increases Dropsy is entirely erroneous.

DIET IN ECZEMA AND OTHER SKIN DISEASES.

Cod-liver oil is a dietetic medicine of great value in Eczema, especially in the chronic stage, and when attended with emaciation. Children will often take it greedily in its natural state. It may be given with safety to the youngest infant; or it may be given in the form of cod-liver oil chocolate. The daily use of vegetable food is a point that should be rigidly adhered to, especially such as is eaten uncooked—lettuce, celery, watercresses, etc., for vegetables contain potash salts, which are needed by the blood, but are abstracted in the process of boiling. The juice of meat is very valuable; it may be given alone as beef or mutton tea, or mixed with other food. Salted and cured meats are decidedly objectionable, except fat bacon, which is recommended for breakfast. For infants the cod-liver oil is especially valnable; also good milk in large quantity, chicken broth, etc. This provision of *fresh* meat and vegetables, combined with the use of pure *soft* water for ablutions, will be found very helpful in the relief of all cutaneous disorders.

Diet in Diseases of the Liver.

As diseases of the liver are very frequently occasioned by errors in diet, careful regimen fills a most important place in the treatment of the functional disorders of that organ. Temporary disturbance and chronic derangement alike call for limitation in the articles of food. The morbid condition which is indicated by jaundice, its yellow discolorations, lassitude, and sense of weight and fulness, must be met as much by prohibitions of diet as by prescriptions of medicine. As the two leading causes of diseases of the liver are too abundant, highly seasoned, stimulating diet, and the habitual use of alcoholic drinks, these should be persistently avoided. Excesses at the table, which cause the introduction into the system of a great variety of noxious matters which clog the functional processes, and overload the digestive organs, must be supplanted by moderation and abstinence. Heavy meals, sweet and oily articles of diet, and alcoholic stimulants must not be allowed. A minimum quantity of albuminous food should be taken, in order that the quantity of uric acid may be lessened; and a minimum quantity of carbonaceous food, in order that the uric acid may be oxidized as much as possible. Great regularity should be observed in the hours of meals, and only light and nutritious food taken. When acute symptoms are present, chicken broth, beef tea, *toasted* bread scalded with hot water and flavoured with a little sugar, roasted apples, and cold water *ad libitum*, constitute the most suitable diet. All food, when a more varied regimen is admissible, should be properly cooked, and the quantity taken should be proportioned to the amonnt of physical work that has to be performed, for one of the most common auxiliaries of liver disorders is deficiency of outdoor exercise and the maintenance of sedentary habits.

With regard to food supplied to soldiers not in action in India, two errors are commonly committed,—the rations are too large, and served out according to regulations that may be very good with reference to a temperate climate, hard work, and

English habits; and the condiments—spices and pepper—are supplied in excess, additions which may be suitable for the purely vegetable diet of the Hindoo, but which are prejudicial to the European. The diet adopted in India is usually far too stimulating; especially is this the case with regard to alcoholic drinks. Whether in India or elsewhere, those that are subject to diseases of the liver should studiously abstain from malt liquors, port wine, champagne, and other strong wines and spirits. Claret, or a small quantity of the purest spirit largely diluted, as a rule answers best as a beverage; but even these should be taken sparingly, and many persons do best without stimulants at all. Entire abstinence would be attended with no serious results; there might be temporary inconvenience due to a craving for what had been habitual, which would be modified by a little coffee or tea, and would be speedily overcome; but abstinence at that cost would act beneficially on the functions of the liver.

DIET IN INFANCY.

Infancy is not naturally a period of sickness; but it is a time in which sickness is often induced by errors in diet. Indeed, there is no more fruitful source of suffering and death at this period than unsuitable or excessive feeding. Of more than 1,000 deaths of children under one year of age in Newcastle during 1874, 19 per cent. died from diseases consequent on improper nutrition.

Milk is the natural food of infants, and nothing can altogether take its place. If the mother's milk be withheld, unless the milk of another carefully-selected mother be substituted, the child will suffer. This alone contains the elements suitable for the growth of the infant, and in such form and proportions as can be digested; for during the first period of infancy all the digestive functions are not in operation. There are no teeth for the mastication of food, there is no saliva to dissolve it and facilitate its assimilation; while the stomach and intestines are in such a susceptible and delicate state, that they are easily deranged even by the unsuitable food which may be eaten by the mother. There are thus physiological indications that the digestive capacity is limited, and that no other food is suitable besides that which the Creator has provided in the mother's milk. When the teeth begin to appear, and the maternal milk begins to fail, this may be supplemented by light farinaceous diet. And when the teeth become more developed during the second year, some animal food may be added.

If the mother's milk fail, and a substitute cannot be provided, the milk of the cow should be used, as it approaches most nearly to woman's milk in its constituent elements. It is of course important that the milk should come from a cow or from a dairy where the cows are in a healthy condition and well cared for. It is by no means essential, though desirable, that the milk should be always obtained from one particular cow. But it is essential for the health of the infant that the milk be supplied from cows fed on wholesome food. It is also essential that the cow has not very recently calved. And the fresher the milk the better; for as the mother's milk deteriorates by remaining in the breast after the draught comes on, so the cow's milk is deteriorated by standing. New milk warm from the cow is the best for children at any age.

When given to the child the milk of the cow should be assimilated as nearly as possible to that of the mother. It should be diluted in the proportion of two-thirds of milk to one-third of soft, pure, *tepid* water, to each pint of which should have been previously added a drachm of sugar of milk (which being extracted from milk is far preferable to cane-sugar, and two grains of finely-powdered phosphate of lime). If the milk has been skimmed, a large table-spoonful of cream should be added to each pint of milk; if not skimmed, the addition of two tea-spoonfuls will suffice. After a time the proportion of water may be lessened. It is of importance that after the child has been fed the bottle be washed with a weak solution of carbonate of soda, and that the teat be put into cold water, there to remain till wanted.

Condensed milk, *i.e.*, milk from which much of the water has been evaporated, and to which a large proportion of cane-sugar has been added, is now used to a large extent as a substitute for fresh milk. Its recommendations are that it is cheap, and always ready to hand for the preparation of a meal. But it is doubtful if in such preparation sufficient water is usually added, if the milk is not too much sweetened, and if infants fed on it do not acquire a plumpness which is due to the increase of fat rather than of flesh. It is hard to say that it ought not to be used, especially when there is difficulty in obtaining a supply of fresh and pure cow's milk; but it is not certain that it is really wholesome diet for a child. In using it, it should be remembered that it is to be diluted not merely to the consistence of ordinary cow's milk, but to the substitute for woman's milk.

When dribbling commences and the teeth begin to appear, the infant may be fed on bread sop, sweetened with sugar of milk, bread crusts which he can suck and gnaw, plain biscuits, biscuit powder, baked flour, and rusks, or Neave's farinaceous food; but fancy biscuits are objectionable. It is not till the parotid glands secrete saliva that the child is able to digest starchy food.

And it may be observed that not only is the maternal milk the very best diet that a mother can give to her child, but the best part of it is when "the draught comes in." The reason for this is that it has just been secreted, and is therefore in the most refined and perfect condition. Every minute that it remains in the gland after secretion it deteriorates, for particles are separated which never reunite; and thus the assimilation by the child is less easy.

A little mutton broth, weak beef-tea, or chicken soup may be occasionally added. But these additions to milk diet should be only gradually made. Premature weaning is to be most strongly deprecated; its advantages are superficial, its evils lasting. It has been shown by M. Guerin that too early weaning is the most fruitful cause of Rickets. The child may appear to be well, his muscles firm; he may be active and desirous to walk; but the bones have not grown, the limbs yield and become distorted. The bow-legged children so common in manufacturing districts suffer thus in consequence of neglect in infancy.

There are circumstances, however, which justify early weaning. If the mother be a feeble woman, if she be subject to any acute disease or chronic affection, or if she show signs of suffering from continued lactation—such as headache, dimness of sight, shortness of breath, palpitation or night sweats, the maternal nursing should be discontinued. And the discontinuance may be desirable at the end of the sixth month. or even of the first or second; for persistence in nursing is then prejudicial to both mother and child.

But the period of weaning should under ordinary circumstances be determined by the growth of the teeth and by the child's age. Milk should be the predominant food till the eye-teeth are cut; it is then not difficult to resume a diet of milk altogether, if in connection with dentition there be diarrhœa, convulsions, or other ailments. From seven to twenty months of age farinaceous matters may be mixed in gradually increasing quantities with the milk; but they should be well cooked first by being baked, and then dissolved by boiling.

According to our experience Neave's farinaceous food is one of the best articles of diet for infants, and indeed for invalids generally. It contains all the ingredients requisite for the formation of muscle, fat, and bone, and for the maintenance of the warmth of the body. As it contains the essential gluten and salts, it is superior to corn flour for infants and growing children. We know of nothing superior as an element of transitional diet between the administration of milk alone and the adoption of ordinary food. Ridge's, Hard's, and other farinaceous preparations have their recommendations, and are preferred by some persons. Liebig has prepared a "food for infants" from wheat flour, malted barley flour, cow's milk, bicarbonate of potash, and water. It is complex in its composition, and necessitates some complexity in its cooking; nevertheless it is extensively used in Germany, where it is regarded as more suitable to infantile digestion than the starchy food which is usually given in this country. Few persons who can obtain good cow's milk will, however, run the risks involved in preparing it for use. Liebig's extract of malt is a similar preparation for quick assimilation of starchy matters. But whatever be the farinaceous food selected, it should be most distinctly understood that it is to be employed as a gradual transition from milk diet. Prof. Buckingham is of opinion that a healthy mother should nurse her child until the first sixteen teeth are cut; and that if she cannot nurse it so long, it should have no other diet but milk. He states that careful observation has confirmed him in this opinion, for although early deaths may be produced by other causes, the great majority of infants who die fall victims in their second summer, when the changes due to teething are going on, and their stomachs have been *loaded with indigestible food.* Up to three years old, the quantity of farinas may be increased and given as puddings with a little egg. Bread and butter may also be given, and towards the end of that time a well-boiled mealy potato with a little red gravy may be given for dinner.

But no child should be allowed to touch animal food of any kind until its eye-teeth and first molars are developed. The late Sir C. Clarke used to say that the frequent infraction of this rule was worth £10,000 a year to him; his practice lying chiefly among the children of the higher classes. After that age the quantity and quality of meat allowed should be carefully graduated according to the constitution of the child, those of a sanguine temperament requiring less animal and more farinaceous food, while the more robust and less sensitive need more solid nutriment.

One of the greatest mistakes committed in feeding children consists in giving them too frequent meals, or allowing them to be continually eating, particularly in allowing them sweetmeats and other indigestible articles to be consumed between meals. After two years of age, an interval of four hours between meals is rarely more than enough, and to give biscuit, fruit-bread, or sweetmeats in the meantime is just subtracting so much from the digestive powers of the stomach, which like every other organ, *requires an interval of repose after action.*

And here we may add a very strong protest against the practice of giving (even occasionally) alcoholic stimulants to infants and children. The ignorance which prompts some parents to give their children beer, wine, and even spirits, is marvellous as it is culpable. Such drinks are quite unnecessary, except when ordered by a medical man in cases of illness; an immediate injury is inflicted on the child, and tastes and habits are formed which will prove harmful in after life. In proof that immediate injury is inflicted, the following fact may be cited.—An ingenious surgeon tried the following experiment: —he gave to two of his children, for a week alternately, to the one a full glass of sherry, and to the other a large orange. The effects that followed were sufficient to prove the injurious tendency of various liquors. In the one the pulse was quickened, the heat increased, the secretions morbidly altered, and the flow of bile diminished; while the other had every appearance that indicated high health. The same effects followed when the experiment was reversed, when the orange girl took wine, and the wine girl had an orange. The injury cannot be less decided when infants, with their delicate and susceptible organizations, sip the beer and wine their parents indulge in.

SOLID NUTRIMENT.

In conjunction with the preceding remarks, the following dietaries may prove suggestive and useful, the presumption being that at the earliest age the mother is able to nurse her child.

DIET FROM SIX TO TWELVE MONTHS OLD.—1.—7 a.m., a breakfast-cupful of Neave's food. 10.30 a.m., a breakfast-cupful of milk, with a teaspoonful of lime water added if milk alone causes discomfort. 2 p.m., the yolk only of one egg well beaten up in a teacupful of milk. 5.30 p.m., as at 7 a.m. 10 p.m., as at 10.30 a.m. 2 (*alternative*).—7 a.m., a dessert-spoonful of pearl barley jelly dissolved in a breakfast-cupful of warm milk, slightly sweetened. 10.30 a.m., a breakfast-cupful of milk with a teaspoonful of lime water if necessary. 2 p.m., egg pudding, with a little milk or sugar or red gravy. 5.30 p.m., a teacupful of Neave's food. 10 p.m. as at 10.30 a.m.

DIET FROM TWELVE TO EIGHTEEN MONTHS OLD.—1.—7.30 a.m., a rusk or slice of stale bread with a breakfast-cupful of milk; if the child has teeth it should crunch the bread and sip the milk; if not, the bread should be soaked in milk. 11 a.m., a teacupful of milk, with a plain biscuit or a thin slice of bread and butter. 1.30 p.m., egg-pudding, with a little milk, or sugar or red gravy; or (*alternative*) a teacupful of good beef-tea, or of beef gravy, with rusk or stale bread, followed by a table-spoonful of light farinacous pudding. 6 p.m., as at 7.30 a.m.

2 (*alternative*).—7.30 a.m., the yolk of one lightly boiled egg, a thin slice of bread and butter, and a cupful of new milk. 11 a.m., a drink of milk and a thin slice of bread and butter. 1.30 p.m., a mealy potato, thoroughly cooked, well mashed, and moistened with red gravy ; a cupful of milk. 6 p.m., a rusk or slice of stale bread with a breakfast-cupful of milk, the bread may be crunched and the milk sipped, or the bread soaked in the milk. A weakly child may have a little milk at 10 p.m. ; a healthy child will need nothing after 6 if well trained.

3.—Three good meals will suffice for some children. 8 a.m., Neave's food in three-quarters of a pint of milk. 1 p.m., a teaspoonful of baked flour and one of fine oatmeal beaten up together till smooth with four table-spoonfuls of cold water ; the yolk of an egg beaten up in three-quarters of a pint of milk, this added to the former and the whole boiled till it thickens. 5.30 p.m., as at 8 a.m. If the child really requires anything early in the morning or at 10 p.m., he may have half a teacupful of milk and a plain biscuit, or a thin slice of bread and butter.

DIET FROM EIGHTEEN MONTHS OLD AND UPWARDS. —1.—7.30 a.m., a breakfast-cupful of milk with a couple of rusks or a good slice of stale bread. 1.30 p.m., a small slice of underdone lean of roast mutton, well masticated, one well-boiled and well-mashed mealy potato with a little gravy ; water or milk and water. 6 p.m., a breakfast-cupful of milk, and bread and butter.

2 (*alternative*).—7.30 a.m., a breakfast-cupful of milk, the yolk of one lightly-boiled egg, a slice of bread and butter. 1.30 p.m., a breakfast-cupful of good beef-tea, followed by a good tablespoonful of plain custard or farinaceous pudding. 6 p.m., a breakfast-cupful of milk with bread and butter.

From two years old meat may be given once a day, and a little well-stewed or preserved fruit or marmalade occasionally added to the diet. Cocoa may be sometimes substituted for milk; tea and coffee should be entirely withheld.

DIET IN OLD AGE.

With the decline of life there is a diminution of the activity of the secretions and of the assimilative functions. Disintegrated cell-tissue is but tardily repaired, and the muscles become soft, flabby, and pale from an insufficient supply of blood; there is therefore a diminution of physical strength. The nervous functions are also only imperfectly performed. Hence it is necessary that there should be some modifications in the diet when a person has passed middle life. Very old people, and those who have lost their teeth, are in danger of swallowing food before it has been sufficiently broken up and moistened with saliva, thus giving rise to indigestion and imperfect assimilation.

Indigestible and innutritious articles of diet should therefore be studiously avoided. The items which were harmless in the vigour of life are now harmful, and must be eschewed. Heavy puddings and pastry overload the stomach. Meat should be tender and nutritious, with the gravy in it: flesh firmer, of tougher fibre, and dried pieces should be left to younger consumers. Still there should be in flesh and vegetable sufficient solidity and tenacity to compel mastication, and thus promote the secretion of saliva and gastric juice. Soups and broths are nutritious, but they should not contain solid vegetables, which might be swallowed without previous solution by the salivary secretion.

Alcoholic drinks are now helpful to those who have been abstemious in early life. The best should be selected; cheap spirits are to be especially avoided, on account of the quantity of fusel oil they contain. If sleeplessness be troublesome, an egg, a sandwich, or a few biscuits, with a little warm wine and water or a glass of bitter ale, the last thing before going to bed, will be found serviceable.

Attention should be paid to the teeth. These little organs of mastication perform a very important part in the preparatory process of digestion. Those that are sound should be preserved; those that are beginning to decay should receive the immediate care of the dentist. Artificial teeth are very valuable substitutes for lost natural teeth; and when a set has been procured, they should be examined every few months by the dentist, so that they may be fitted to the shrinking gums, and their grinding surfaces kept in apposition. The roughness of those surfaces also becomes worn down, and consequently the trituration of food is incomplete. Teeth should be obtained not merely to improve personal appearance, but also to promote mastication and healthy digestion.

DIET FOR TRAVELLERS.

One of the common errors of ordinary travellers is that they eat and drink too much on their way. For want of occupation, and under the excitement of travelling, more is eaten than a healthy appetite really calls for, more than the stomach can properly digest, and more than the system actually needs. In the course of a long journey it is sometimes necessary to time the refreshments by the stopping-places at which they can be obtained ; but as nearly as possible the ordinary periods for taking meals should be observed. Sandwiches, or some other light repast, will allay the appetite, and will meet all the requirements of the system in a state of repose, and when no physical or mental demands are made upon it. Warm coffee or tea is much to be preferred as a beverage to beer or spirits; the warmth is grateful to the consumer in cold weather, and the perspiration induced is cooling in hot weather, care being taken in the latter case not to sit in a draught. The stimulating effect of alcoholic drinks is undesirable for the drinker ; while the exhalations therefrom are obnoxious to other travellers.

Invalid travellers are, however, more in danger of eating too little than too much. They have to guard against the exhaustion of fatigue as well as to maintain the tone of a system already enfeebled. And they are often so injudicious as to tax their powers of endurance to the utmost by attempting too much in the course of a day. In travelling, say, to winter in the south of France, or to the Italian watering-places, there is often eager haste to reach the end of the journey, involving needless and injurious fatigue. The day-journeys are often too long, the night-rest is often too short; and if the invalid travels by "easy stages," he is often guilty of the indiscretion of attempting a little sight-seeing, which is incompatible with the conservation of strength which is really needed. Premising that too much is not attempted, and that some friend relieves the invalid of all charge of luggage, tickets, &c., and secures prompt entrance into the waiting-rooms, we will point out what is desirable with reference to food. Arrangement should be made before starting for an ample supply of what may be required by the invalid, and in such form and manner that it may be taken when the appetite calls for it. An invalid should not have to wait for what may happen to be at the next station, with its hurry and excitement. A basket should be filled with essentials,—a chicken, pheasant, ox-tongue, a plain cake, plain biscuits, butter, grapes, wine or wine and water, or whatever the patient may and can take. Rolls can always be obtained at the hotels. The basket should also be replenished on the way. A little forethought will provide whatever is suitable, tasty, and easily handled in a railway train. The demands of appetite can thus be met when they are most keen, and the invalid is saved from irritation and exhaustion.

Travellers by Sea should prepare themselves a few days before the voyage for the new conditions to which they will be subject. Besides taking such medicines as may improve the digestion, over-repletion, irregularity in taking food, rich and indigestible diet, and everything likely to disagree should be avoided. During the early part of the voyage, unless the weather be very fine, or the traveller be used to the sea, he should remain in his berth in a *horizontal* posture, and take chiefly liquid food, such as beef-tea, chicken-broth, or such light diet. Champagne—iced, if possible—is the best beverage if it suit the stomach. Soda-water, with a small quantity of brandy, often suits well. Drinking a tumbler of *tepid fresh water* facilitates sickness and thus brings prompt relief. When the sickness, subsides and the appetite returns, a cup of good coffee without milk or sugar, with a plain biscuit or a small slice of toast, is often grateful.

DIET IN MATERNITY.

The expectant mother should make few changes in her diet, if it be simple, nutritious, and easily digested. It is an error to suppose that she should eat and drink excessively. Quality is to be considered rather than quantity. Rich food does not nourish the infant, and may be productive of serious consequences. Whatever is taken should be thoroughly masticated, and accompanied by a little cold drink, as milk and soda water. Animal food, plainly cooked, once a day, well-boiled vegetables, ripe fruit, and farinaceous *puddings*, will afford sufficient variety, and at the same time not disagree with the stomach. Highly seasoned dishes, salted and smoked meat, pastry, rich sauces, and much raw fruit are objectionable. Strong tea and coffee, wines, beer, spirits, and stimulants are usually prejudicial to mother and child. Everything that is likely to produce constipation should be avoided; while such food as brown bread, biscuits, and cooked fruits are to be taken to maintain a healthy action of the bowels.

The recent mother should be allowed to have as much good nutritious food as she desires, and can easily digest and assimilate. As soon after delivery as the appetite returns, substantial, nourishing diet may be given. If the appetite be poor (perhaps from exhaustion or want of fresh air, or want of exercise), it may be at once tempted by some simple but palatable food, without waiting for it to become stronger. A mutton chop or the breast of a chicken, oatmeal porridge, cold toast buttered, bread and butter, light farinaceous puddings, gruel, cocoa, black tea, &c., may be given. Many women have suffered from low inflammatory symptoms and serious uterine disorders from a too exclusive use of slops, the system being insufficiently strengthened to rally from the physical exhaustion attending parturition. It should be distinctly understood that wholesome food is the best preventive of inflammation. Too much liquid food is likely to produce flatulence, distention, and constipation, and to retard those physiological changes which take place after parturition.

The nursing mother should abstain from whatever disagrees with herself or may be productive of discomfort to her infant. She should feed well, exercising discrimination in her choice of food; but not over-feed herself. Her meals should be regular, mastication complete, and natural appetite satisfied. If she be a small woman, and be habitually a small eater, and have small children, she will not require so much as a larger and more robust mother. Highly seasoned or indigestible food, late dinners or heavy suppers, strong wines and spirits, should be avoided. It is by no means necessary that a very sparse and limited diet should be adopted, but there should be a judicious abstinence from whatever would disagree with herself or deteriorate her milk. Some self-denial must be practised for the sake of the child, yet such kinds of food as goose, duck, salted meats, shell-fish, rich dishes, and pastry should not be taken; but good butcher's meat, fowl, game, farinaceous vegetables and puddings may be eaten. To provide good milk, nothing is better than cocoa, cow's milk, or milk and water; to satisfy thirst, barley water, toast and water, or plain water should be taken. But it is a great mistake to suppose that malt liquor or wine makes more or better milk. It adds nothing to the excellence of the secretion; on the contrary, it detracts from it, for it makes it watery, and the acidity and bitterness of the liquid drunk is prejudicial to the child. If a small quantity has been habitually taken, its use may be continued, but not exceeded with the notion that the patient "requires more support" than is obtained from good *joints*, plain drinks, fresh air.

CHAPTER VII.

METHODS OF PREPARING FOOD.

The preparation of food by cooking subserves several very important purposes. It destroys some things that might prove injurious, destroying any parasitic germs that may exist. It renders food more pleasing to the sight, more fragrant to the smell, more agreeable to the taste, and more digestible by the stomach. Flavour is developed, and the cohesion of tissues is lessened, so that the digestive juices can act more freely upon them. Previous beating and bruising of flesh facilitates the loosening process, and makes the meat more tender; hence the custom of beating chops and steaks. Warmth also aids digestion.

Cleanliness is the very first principle of cooking; tact in arranging and setting off the food is no mean accomplishment. In the preparation of food for the sick, greater care, if possible, should be exercised than in similar operations for the healthy. The slightest error in cooking may cause the loss of appetite at the very time when it is most needed. The fastidious taste and weakened stomach turn in disgust from what may be the most appropriate nourishment, often compelling doctor and nurse to seek some other which may be less suitable and less easily provided. Food prepared without the knowledge of a patient will generally be better relished than if he is first consulted as to what he will have, and how it is to be dressed. The cooking should be done at such a distance that no odour from it can come to the sick room. The room itself is the last place in which food should be prepared if it can be done elsewhere.

Roasting on a spit is by far the best method of preparing food for the table. To retain the nutritive juices, the joint should be placed close to a clear, strong fire for five minutes *at first*, and then removed to a greater distance until the last five minutes, when it should be brought near the fire again. The albumen and extractive matters are thus hardened into a case, which keeps together the valuable fibrinous particles till they have undergone the desired changes by slow heat, while objectionable oils generated by the charring of the surface are carried off. The dripping is wholesome for the healthy, but (especially if at all burnt) is indigestible if the stomach be at all weak. When the joint is thoroughly roasted, the retained gravy will flow out freely at the first incision, and the meat, while yet red, will have lost all purple colour even to the bone. The time of roasting depends partly on the kind of meat, partly on the size and weight of the joint. Beef, mutton, and goose require a quarter of an hour for each pound;

veal and pork require an additional five minutes; poultry and game require less than this proportion. Lamb, veal, pork, chicken, and the flesh of all young animals is better roasted, because it contains a large proportion of albumen and gelatine in the tissues, which is partly lost in boiling.

Broiling is roasting applied to small portions of meat. A beefsteak or mutton chop should be done quickly on a gridiron over a clear, hot fire, free from smoke, so as to retain the juices; it should, therefore, not be pricked with a fork. Fish is best broiled.

Baking meat at a high temperature is but an imperfect method of roasting: imperfect, because it usually takes place in an oven, from which there is usually no escape for the volatile fatty acids which are generated. The meat is, therefore, richer and stronger than when roasted before an open fire, and less adapted for weak digestion. If, however, the meat be enclosed in a thick piedish, a crust of some sort, or a coat of clay (as gipsies, Indians, and Maories cook their joints and fowls), it is delicious. No charring then takes place; but all the fat and gravy, which generally ooze out, assist in the cooking. The process still goes on after the dish is removed from the oven, if it is kept hot by being enveloped in thick flannel, or put in a "*Norwegian nest*," or "self-acting cooking apparatus." The "nest" is a box thickly padded inside with felt, so as to retain the heat in the enclosed vessel. It would often be very useful as an appurtenance of the sick room. The "Cornish pastry," made of meat or fish, enveloped in a thick solid crust, baked slowly, then packed in several layers of woollen material, will keep hot and delicious for several hours. Vegetables and fruit should be likewise slowly baked. Eggs should be only sparingly used in baked dishes, because their albumen becomes more solid and indigestible with prolonged cooking.

Frying is usually objectionable because the fat in which the meat is cooked produces an excess of volatile acids; moreover it is often burnt, and thus changed in character and rendered indigestible, causing flatulence and heartburn. If, however, it be skilfully done, frying is a wholesome form of cooking food. The skill consists in frying "lightly," quickly, and evenly, and with constant motion, so that the oil is not allowed to burn. A perfectly clean frying-pan; a clear smokeless fire; good pure clean fat or clarified dripping, or a small quantity of oil, or genuine fresh butter, are essential. The fat should actually boil, the meat, fish, and vegetables turned about till they are lightly cooked without a scorch, then served hot with all the oil drained away; they are then nice and wholesome for most persons.

Boiling.—There is a vast difference between boiling meat which is to be eaten, and meat whose juices are to be extracted for soup. In the former case the juices have to be kept in, in the latter drawn out. *Slow* boiling of a joint makes excellent nourishing soup, but spoils the meat by extracting all the goodness. *Quick* boiling also spoils the joint by hardening all the fibres. It should be plunged into *boiling* water, and kept at boiling temperature for five or ten minutes; cold water should then be added to reduce it to about 165°, at which it should be maintained for the whole period of cooking. By the contraction and coagulation of albumen caused by the first plunge, the internal juice is prevented from escaping into the surrounding water, or from being diluted by its entrance through the pores. Mutton and fish are best boiled in hard water, water to which salt has been added, or sea water. The scum which rises on the top of the water while meat is being boiled is always useless and unwholesome, and should be removed as completely as possible. Vegetables are best boiled; they should be thoroughly cooked, so as to become soft, then strained in a cullender, and served as free from water as possible. Cabbages and carrots can hardly be boiled too long. Soft water is essential for vegetables; steaming them is a form of boiling them in soft water.

Stewing occupies a middle position between roasting and boiling. The meat should be covered with cold water, then heated up and kept simmering, not boiling, till thoroughly done. The nutritive materials are diffused through the solid and liquid, which are then served up together. *Hashing* is the same process with meat previously cooked. But hashed, or otherwise twice-cooked meat, is very unwholesome.

There is another method of cooking, by which the meat is stewed in its own vapour alone. The meat is placed in a covered jar, the jar is put into water in a saucepan, and the water is made to simmer, and when a sufficient time has elapsed, the meat is done, quite tender, and well-adapted to the invalid. Warren's cooking pot is constructed to prepare meat in this way.

SOUPS, BROTHS, &C.—If it is desirable to extract the nutriment so that it may be given in the form of *broth*, the meat should be finely chopped or minced, put into cold water, soaked for a short time, then gradually heated to a temperature just *below* boiling-point, at which it should be kept for half an hour or more. But if *soup* be wanted, the heating should go on to boiling-point, and maintained there, in order that the gelatine may be extracted to solidify the soup. It should be carefully observed that the minced meat should be put into cold water for a time, never into boiling water at first The leanest meat is the best for soup-making; the least particle of fat is out of place in broth or soups, and indeed renders it absolutely unwholesome as well as nauseous. Bones which require long boiling, yield abundant gelatine

Salting meat makes it less nutritious, not by the addition of salt, but by the removal of the fluids and salts by the brine. The dried flesh is difficult of solution by the digestive secretions. Soaking in water softens it and removes the salt, but does not restore the nutritive value. The longer the salt remains in the tissues, the harder they become. *Drying* is less prejudicial to the meat ; when the process is completed the meat becomes no worse until the decomposition sets in. *Smoking* imparts a flavour to dried meat which many prefer. Meat *preserved in tins* is too much cooked to be very digestible. It contains a good measure of nutritive elements, and is economical, but is not agreeable to every palate. It is best eaten only warmed up, not cooked again, and served with macaroni and vegetables.

The utensils employed in the preparation of food should be kept scrupulously clean. Cooks do not seem to be aware how often their dishes are unpalatable, and therefore unwholesome, solely from being prepared in a vessel which has a disagreeable flavour remaining in it. Those lined with porcelain should always be used in preference to those of plain iron or tin, which are not so easily cleaned, and are therefore likely to affect the flavour of the dishes. Still it must be admitted that they burn more easily, so that without close watching it is very difficult to boil milk in them. Soap is sometimes employed in washing pots instead of soda ; and it is deemed sufficient to wipe out a saucepan with a dish-cloth, when it should be scrubbed out with a hard brush or metal shavings. The grease of the soap and cloth adhere to the metal, and its rankness spoils the delicate flavour of something intended to tempt the appetite, or satisfy the fastidious digestion of an invalid. Especially is it important that anything with strong and persistent odour, such as onions and other condiments should be cleansed from vessels, knives, &c., before they are used for another purpose. Food is the only thing that should come unexpectedly to the patient; it is always more enjoyed when it is thought to come from a neighbour or friend. Great care should be taken that no unpleasant flavour adheres to the food, and especially should scorching be avoided; volatile extracts or oils should not be employed for flavouring, the juice of stewed or preserved fruits is far preferable.

In cooking animal food about one-fourth of the weight is usually lost by the process; but the loss varies with the quality of the meat and the process employed. Dr. Letheby estimates the loss at the following per-centages :—

	Boiling.	Baking.	Roasting.
Beef, generally	20	29	31
Mutton, generally	20	31	35
„ Legs	20	32	33
„ Shoulders	24	32	34
„ Loins	30	33	36
„ Necks	25	32	34
	—	—	—
Average	23	31	34

The loss arises principally from evaporation of water, the escape of fat and nutritive juice, and the destructive action of heat. According to Dr. Letheby it is least in boiling, greatest in roasting, because in the former process there is no evaporation of water. This suggests that in the baking and roasting, endeavour should be made to prevent evaporation. Indeed, the perfection of cooking is to retain as much as possible of the constituent elements of the meat, and this is accomplished in the different methods adopted by subjecting the meat at first to a strong, quick heat, which contracts the fibres, coagulates the albumen at the surface, and thus closes up the pores by which the nutritious juices would escape. A lower and less rapidly acting heat will then suffice; for thereafter the cooking goes on through the agency of the natural moisture of the flesh. Converted into vapour by the heat, a kind of steaming takes place, so that whether in the oven, on the spit, or in the midst of boiling water, the meat is in reality cooked by its own steam. When properly prepared, instead of being dried up or insipid, the meat will be full of its own juice, which will flow forth as rich gravy at the first cut.

Liebig's Extract of Meat.—One small teaspoonful, dissolved in a pint of boiling water, forms a substitute for beef tea when there is no time to make the tea, or convenience for making it properly. But to it should be added broth in which bones have been boiled, or some farinaceous substances, such as arrowroot, sago, or tapioca, which have been thoroughly boiled. By itself the extract is more stimulating than nourishing, and is especially beneficial in cases of muscular exhaustion. It may prove useful in exhausting fevers or debility of the heart. Its stimulating effect is not followed by the reaction which attends alcoholic drinks.

A tea-spoonful of Liebig's extract in a pint of barley water, with a pinch of salt and flavouring, is very nourishing. A teacupful of milk in addition will make it more so. And a greater improvement is made when for the milk are substituted the whites of two eggs, beaten up with two table-spoonfuls of milk, and stirred in when the barley is sufficiently cool to be eaten.

BEEF-TEA.—1. Half a pound (or a pound, according to the strength required) of rump steak should be cut up into small pieces and put into a covered enamelled saucepan with one pint of cold water. Let this stand in a cool place for several hours, and let it then simmer gently for two hours. Skim well, and serve. If grease be specially repugnant, the last traces may be removed by lightly skimming the surface with pieces of white blotting-paper. If there be time, it is better to let the beef tea get quite cold, and then remove the cake of fat.

2. The same proportions of beef and water, placed in an earthen vessel, lightly covered, and allowed to stand in a saucepan-full of hot water near the fire for several hours, is a plan much commended.

3. Heat the meat and water gradually to the boiling-point, and then strain immediately.

4. In order to make beef-tea, or any extract of meat, quickly, economically, and of a certain required

strength, Dr. Leared recommends the use of a receiver having an air-tight screw cover with safety-valve and a boiler, similar to a Papin's digester. A small quantity of the beverage may be prepared as follows:—One pound of beef, divested of fat, bone, and gristle, and cut into very small pieces, should be put into the receiver, adding eight ounces of water, the cover screwed tightly on, and the receiver placed in the boiler, which has been filled with water. It should boil for three hours, when the receiver should be removed, and when sufficiently cool, the cover unscrewed. After squeezing the meat, now a tasteless mass, thirteen ounces of beef-tea, without any loss of aroma, and three times stronger than that prepared in the ordinary way, will be obtained. As experiments prove that one pound of beef will yield five ounces of meat-juice, the extract can be more or less concentrated by regulating the proportion of water. The preparation can be made in one-third of the time if salt be added to the water in the boiler. The extract of course becomes gelatinous, and consolidates on cooling, when bones or the sinewy parts of meat are used; but gelatine, contrary to the popularly received opinion, is comparatively unimportant in nutrition.

5.—Shred a pound of gravy beef (with sausage machine if possible); place it in a jar and add a salt-spoonful of salt, place the jar in a saucepan so large that it may be covered with the lid. Mix exactly equal quantities of *boiling* and *cold* water; and of this put half a pint into the jar which contains the meat, and so much in the saucepan around the jar as to reach as high as the water inside the jar. Cover the saucepan with the lid, and place it on the hearth, or where the heat of the water will be maintained; but not on the fire or hob, where it will be increased. Stir the meat every ten minutes or quarter of an hour; and in three quarters of an hour to an hour (if the meat has been minced in the machine) or longer, according to the fineness of the shredding, the first process of extraction will be completed; the jar should be taken out, the juice strained off through a hair sieve or muslin, and set aside. The albumen, which coagulates at 135°, is thus secured. The meat left in the sieve should now be put into the saucepan with a quart of boiling water, covered, and slowly simmered for three hours; then boiled up and strained at once. The liquor strained off should be boiled down to half a pint, and when cooled down, mixed with the other half-pint set aside. The result is a pint of strong beef tea, with all the soluble portion of the meat, and the albumen uncoagulated, ready for use. The fat may be removed while warm by white blotting-paper, or when cold in the solid cake. The beef-tea should be warmed up by placing what is required in a cup, and setting the cup in a basin of boiling water; but water should not be mixed with it (except to dilute it) nor should it be put on the fire to boil. Flavouring may be added to taste. Colouring may be given by putting a thin slice of brown toast or a small piece of burnt onion *in the* saucepan, when the meat is set on to boil.

GARD'S EXTRACTOR.

The meat used in any preparation for invalids should be as fresh as possible,—and should be divested beforehand of all fat or gristle. If this precaution be neglected, a greasy taste is given to beef-tea, which cannot afterwards be completely removed. In re-warming beef-tea which has been left to cool, care must be taken to warm the tea up to the point at which it is to be served, and no higher; this is best done, not by putting it on the fire, but in a covered vessel placed in hot water. When once allowed to get cold, it never regains the agreeable flavour it possessed when fresh.

Rice (whole or ground), pearl barley, vermicelli, sago, or tapioca may often be advantageously added to thicken beef-tea.

BEEF JUICE.—1. Take a pound of rump steak, or leg of beef, cut it up into pieces the size of dice; put it into a pint of cold water, into which previously mix twenty drops of hydrochloric acid and half a teaspoonful of salt. Cover up and let it stand in a cool place for two hours. Strain off the liquor (pressing the meat), and gently simmer for ten minutes. A table-spoonful will give more nourishment to a patient than a cupful of ordinary beef-tea. In extreme cases it might be given without being cooked. Beef juice combined with albumen (white of egg) yields much sustenance in Enteric fever.

2. Shred the beef and put it into a jar (*no water*); tie up close, and put the jar into a saucepan of water, and

let it *simmer*. Give the invalid one or two spoonfuls at a time; keep the jar in hot water. Make fresh when all goodness is extracted.

BEEF ESSENCE.—This is prepared as follows:—A pound of lean beef, free from skin, bone, and fat, should be cut up into small squares, put into a large earthen jar with cover, the edges cemented with flour paste, or the cover tied down tight with several thicknesses of paper; tied up tightly in a cloth; put into a saucepan so that the top of the jar is not reached by the water, and boiled from one to two hours; the liquid essence should be poured off from the coagulated muscle, let stand till cold, and the fat skimmed off. This contains a large quantity of nutriment, is generally pleasant to the palate, and is particularly valuable in *extreme exhaustion*. A few tea-spoonfuls may be given every one, two, or four hours.

BEEF PULP.—Instead of raw *minced* beef, often recommended, scraped beef is far more easily digested, as it is free from sinews, and it is more palatable. It may be prepared as follows:—Take a piece of steak cut like a little block, scrape the surface with a silver spoon until all the pulp is extracted, then cut a slice off the steak and scrape the newly cut surface again. One or two table-spoonfuls of the pulp may be given at a time to an adult. A dessert-spoonful may be given for one meal to children, mixed with red currant jelly, or spread as a sandwich between bread. In the latter case it requires a sprinkling of salt and some pepper. Pulp thus prepared has been taken with great benefit in Dyspepsia, chronic Diarrhœa, and weakness following a long illness. It has also been given to consumptive patients with great advantage.

MUTTON BROTH.—1. This may be made in a similar manner to beef-tea, either plain or thickened. For this purpose, the best part of the sheep is the scrag-end of the neck, free from skin and fat, bruised and cut into small pieces.

2. Mutton broth may be made either plain or thickened, according to the taste of the patient. Bermuda arrowroot is an agreeable ingredient for thickening. Take half-a-pound of the scrag end of neck of mutton; strip off all fat and skin; bruise thoroughly the meat and bone together with a chopper; then place the meat in a hollow dish, with just enough cold water (from a vessel previously containing a pint) to moisten the solid matter; add a tea-spoonful of salt; cover over with a flat dish, and set aside for three-quarters of an hour; then remove the liquor and meat into a stew-pan, and add the *remainder* of the water; place the stew-pan upon the hob, close to the fire, until the contents just simmer, when begin to skim by passing three sheets of clean white paper over the surface. Maintain the simmering heat for an hour and a half, and strain through a hair sieve.

VEAL BROTH.—Veal broth is barely palatable without the addition of a little vegetable. Take twelve ounces of good knuckle of veal, *quite fresh;* strip off all skin and *fat;* bruise the meat and bone together with a chopper; place in a hollow dish, and add a tea-spoonful of salt, and just cold water enough to moisten the meat (from a vessel previously containing a quart); cover over, and stand aside for twenty minutes; then add the *remainder* of the water (from the vessel just mentioned); put the whole into a stew-pan on the hob, close to the fire; watch until it simmers, skim as directed for mutton broth. Maintain the liquor at just simmering heat for an hour and a half, skimming cautiously; then pour off, strain through a hair sieve, and prepare the vegetables. (If no vegetables are to be used, cut up two very thin crisp slices of dry toast into small pieces; put them into a large breakfast cup or small broth basin, fill up with the hot liquor, add ten drops of lemon-juice, and serve.)

CALF'S FOOT BROTH.—Put a thoroughly cleaned calf's foot with a little lemon peel in three pints of water; simmer for three hours; then boil down to a pint and strain. Remove the fat when cold. For use, melt, have a pint of the broth; add an egg well beaten up with a little white powdered sugar, not more than half an ounce of butter, and a little grated nutmeg; stir these in the broth till it *thickens*, and serve at once. It should not boil.

CHICKEN BROTH.—Chicken broth may be either served *plain* or *thickened.* If plain, it will always require a few slips of thin, crisp dry toast to render it palatable; for otherwise it is exceedingly insipid. Take a full-grown young chicken, picked, drawn, and *skinned;* cut in halves, and to one half add half a pint of water; place in a hollow dish or basin; cover over and set aside for twenty minutes; then add a tea-spoonful of salt and a pint more water; place the whole in a clean saucepan upon the hob, near the fire; watch till it simmers, and immediately begin to skim as directed for mutton broth. Maintain at a simmering heat for an hour and a half, skimming continually; pour off, and strain through a hair sieve.

VEAL SOUP.—A knuckle of veal, two cow-heels, a glass of sherry, two quarts of water and twelve peppercorns. Stew in a covered earthen jar for six hours. Do not open it till cold, then skim off the fat and strain. Serve very hot.

GRAVY SOUP.—Take a little carrot, turnip, onion, and celery, with a clove and pepper: boil the whole gently, and strain, and, for each half-pint of liquor add a table-spoonful of extract of meat, with a little salt.

BARLEY SOUP.—One pound of shin of beef, four ounces of pearl barley, one potato, salt and pepper to taste, one quart and a half of water. Put all the ingredients into a pan, and simmer gently for four hours. Strain, return the barley, and heat up as much as required. A small onion may be added if not objected to.

SARDINIAN SOUP.—Take two eggs, beat them up and put in a stew-pan, add a quarter of a pint of cream, one ounce of fresh butter, salt and pepper to taste, and as much flour as will bring it to the consistency of dough. Make the mixture into balls the size and shape of a nut, fry in butter, and put them into any sort of broth or soup to which they make a very nice addition.

BAKED SOUP.—Cut a pound of lean beef into slices, add one ounce of rice, pepper and salt to taste, place in a jar with a pint and a half of water, cover closely, and bake for four hours. If preferred, pearl barley may be substituted for rice.

Egg Soup.—Over a slow fire beat up the yolks of two eggs, a piece of butter as large as a big walnut, and sugar to taste, with one pint of water, the water being gradually added as the ingredients become intimately mixed. As soon as the preparation begins to boil, pour it backwards and forwards to and from the saucepan and jug, till it is quite smooth and frothy.

LENTIL SOUP.—Mix a table-spoonful of lentil flour and a tea-spoonful of corn flour with a little milk, till as thick as cream. Boil three-quarters of a pint of milk sweetened and flavoured to taste; pour this *slowly* on the flour and milk, stirring meanwhile. Boil all together for ten minutes, still stirring. A whipped egg afterwards added will improve the soup. Salt may be substituted for sugar. This is a most nourishing albuminous food, and a good substitute or beef tea.

EGGS, CREAM, AND EXTRACT OF BEEF.—Wash two ounces of the best pearl sago until the water poured from it is clear; then stew the sago in half a pint of water until it is quite tender and very thick; mix with it half a pint of good boiling cream and the yolks of four fresh eggs, and mingle the whole carefully with one quart of good beef tea, which should be boiling. *This broth is very useful in cases of lingering convalescence after acute disease.*

EGG AND WINE.—1. Beat an egg with a fork till it froths, add a lump of sugar and two table-spoonfuls of water ; mix well, pour in a wine-glassful of sherry, serve before it gets flat. Half the quantity of brandy or whisky, may be used instead of sherry.

2. Beat one egg to a froth with a tablespoonful of cold water; make a glass and a half of water and a glass of sherry hot, *but not boiling ;* pour this on the egg, stirring all the time; add sufficient sugar to sweeten. Put all into a lined saucepan, set it on a gentle fire, and stir it *one way* till it thickens, *but do not let it boil.* Serve in a glass, with crisp biscuits or "fingers" of toast.

EGG PUDDING.—Beat up one egg with a tea-spoonful of flour and sufficient milk to fill a basin rather larger than a teacup; tie the basin and contents in a cloth, and boil for twenty minutes. Milk, sugar, or red gravy may be added when served.

MINCED FOWL AND EGG.—Remove all skin and bone from a cold roast fowl, mince the flesh ; put bones, skin and trimmings into a stew-pan, with one small onion, if agreeable to the patient, and half a pint of water, let this stew for an hour, then strain the liquor. Chop a hard-boiled egg small and mix with the mince, salt and pepper to taste, three table-spoonfuls of new milk or cream, half an ounce of butter, one table-spoonful of flour, and a tea-spoonful of lemon juice ; to this add the gravy, let the whole just boil, and serve with sippets of toasted bread.

PANADA.—Take the crumb of a stale French roll, soak it in milk for half an hour, then squeeze the milk from it ; have ready an equal quantity of cold cooked chicken or lean sirloin of beef or loin of mutton *scraped* very fine with a knife; pound the bread crumbs and meat together in a mortar ; season to taste ; cook either with veal or chicken broth, in a tin put in a warm oven, or poach like an egg. Serve on mashed potato.

POTATO SURPRISE.—Scoop out the inside of a sound potato, leaving the skin attached on one side of the hole, as a lid. Mince up finely the lean of a juicy mutton chop, with a little salt and pepper, put it in the potato, pin down the lid, and bake or roast. Before serving (in the skin) add a little hot gravy if the mince seems too dry.

STEWED EELS.—Wash and skin an eel, cut it in pieces two inches long, pepper and salt them and lay in a stew-pan, pour on them half a pint of strong stock and half a glass of port wine, stew gently for half an hour, lift the pieces carefully on to a very hot dish and place by the fire, strain the gravy and have ready two table-spoonfuls of cream mixed with sufficient flour to thicken it, stir this into the gravy, boil for two minutes, and then add a little cayenne. Pour over the eels and serve. Sometimes the addition of a little lemon juice is gratifying to the palate.

Fried Soles.—Skin them, wash and wipe them dry, dip them in beaten egg, then strew over with bread crumbs. Have ready a pan of fine olive oil, and be sure it boils before you put in the soles; fry a light brown and turn over once ; lay them on napkins for the oil to drain off, serve with plain melted butter.

Broiled Soles.—Skin them, wash and wipe dry, broil on a gridiron over a clear fire, a very little butter may be smeared over the surface to prevent it catching too quickly. Serve with melted butter.

Stewed Oysters.—Half a pint of oysters, half an ounce of butter, flour, one-third of a pint of cream, and salt to taste. Scald the oysters in their own liquor, take them out, beard them and strain the liquor. Put the butter into a stew-pan, dredge in sufficient flour to dry it up, add the oyster liquor, and stir it with a wooden spoon over a sharp fire. When it boils, add the cream, oysters, and seasoning, and simmer for one or two minutes, but *not longer*, or the oysters will harden. Serve on a hot dish, with croutons or toasted sippets of bread. A quarter of a pint of oysters, the other ingredients being in proportion, make a dish large enough for one person.

Suet and Milk. — 1. Put a table-spoonful of shredded beef-suet into half a pint of fresh milk ; warm it sufficiently to completely melt the suet, skim it, then pour it into a warm glass or cup, and drink before it cools. *This recipe will be found valuable in cases where fat is essential, for weakly children, neuralgic patients also in falling off of the hair.*

2. Chop an ounce of suet very fine, tie it loosely in a muslin bag, and boil it slowly in a quart of new milk; sweeten with white sugar. *An excellent aliment in some cases of Tabes mesenterica, etc., or where the unpleasant odour of goat's milk prevents its being taken.*

SUET AND BARLEY WATER.—Chop an ounce of suet very fine, tie it loosely in a muslin bag. Place this in a pint of thin barley water, with a quarter of an ounce of isinglass, or gelatine, and a little sugar; and boil all together for an hour, adding warm water occasionally as it boils away. Pour the barley water on a dozen sweet almonds, pounded fine, and mix well. Then strain.

LIME WATER AND MILK.—Lime water two teaspoonfuls to half a tumblerful of milk. Add a little sugar to taste. *This compound will often be retained when the stomach rejects all other kinds of food. The same may be said of milk and soda water in equal proportions.*

ARTIFICIAL ASS'S AND GOAT'S MILK.—Take half an ounce of gelatine, and dissolve it in half a pint of hot barley water. Then add an ounce of refined sugar, and pour into the mixture a pint of good new cow's milk.

MILK, RUM, AND ISINGLASS.—Dissolve in a little hot water over the fire a pinch of the best isinglass; let it cool; mix with it in a tumbler a dessertspoonful of rum, and fill up the glass with warm new milk.

TOAST is rarely made well. Bread burnt on both surfaces, with the inside spongy, is unwholesome food. It should be of moderate thickness, slowly and thoroughly baked through, nicely browned on the outside —in short, not toasted too fast. Such toast is wholesome to eat or to soak in water.

BREAD-CRUMB PUDDING.—Put a thin slice of bread into a cool oven, and when perfectly dry roll it till it becomes a fine dust. Beat up one new-laid egg with a dessert-spoonful of powdered loaf sugar ; add three table-spoonfuls of new milk, put in the crumbs, and beat the mixture well up for ten minutes. Put the pudding in a basin previously rubbed with butter ; now tie a cloth tightly over, place it in boiling water, and boil for thirty minutes.

BREAD PUDDING.—1. Part of a *stale* loaf of bread, boiled, and served with butter and salt, or with preserves, affords a change of wholesome food. Bread puddings made with eggs and milk, either boiled or baked, may be made according to the receipt used at Westminster Hospital :—Bread, ¼ lb.; milk, ¼ pint; sugar, ¼ oz. ; flour, ¼ oz. ; 1 egg for every 2 lbs. Puddings made in the same way of stale sponge cakes, or rusks, diversify the diet.

2. Pour half a pint of boiling milk on a French roll. Cover close and let it stand till it has soaked up all the milk. Tie up lightly in a cloth and boil for a quarter of an hour. Turn it out on a plate and sprinkle a little sugar-candy over it. The addition of burnt sugar or tincture of saffron will give it the orthodox yellow colour.

MACARONI.—Wash two ounces of macaroni, boil it in a quarter of a pint of milk and the same quantity of good beef gravy till *quite* tender. Drain, and put the macaroni on a very hot dish and place by the fire. Have ready the yolk of an egg beaten with two table-spoonfuls of cream, and two table-spoonfuls of the liquor the macaroni was boiled in; add half an ounce of butter. Make this sufficiently hot to thicken, *but do not allow it to boil;* pour it over the macaroni, and strew over the whole a little finely grated Parmesan cheese, or the macaroni may be served as an accompaniment to minced beef, without the cheese ; or it may be taken alone with some good gravy.

MACARONI PUDDING.—Three ounces of macaroni should be soaked for forty minutes in cold water, well mashed, then added to a pint of boiling milk. This should be stirred occasionally, while it simmers for half an hour ; then two eggs added, beaten up with a dessert-spoonful of sugar ; also, if desired, a flavouring of lemon. This may then be baked in a pie-dish for twenty minutes. *Vermicelli* may be used instead of macaroni, but requires only twenty minutes' soaking.

BOILED RICE.—Put one teacupful of rice into a saucepan with one-fourth of a cupful of water, cover, and place it over a good fire; after an hour the water will be evaporated, and the rice cooked tender but dry, and with the grains distinct, not in a paste. Sufficient salt should be added in the first place, and care should be taken not to disturb the rice when cooking. By adding a little butter and allowing the rice to dry a little more, a more delicate dish is prepared.

GROUND-RICE PUDDING.—Boil half a pint of new milk with two ounces of loaf sugar; moisten two table-spoonfuls of ground-rice with three of cold milk. When this is well mixed, then stir the boiling milk into it; put into a clean saucepan, and stir over the fire for twelve minutes, and then let it get cold. Beat three new-laid eggs, yolks and whites separately; stir the yolks with the rice, and if allowed by the medical man, two table-spoonfuls of cream. Beat the whites to a stiff froth, add them and beat the mixture for five minutes. Rub a pie-dish with butter, pour in the mixture, and bake in a quick oven for some eighteen minutes, then serve at once.

RICE CREAM.—To a pint of new milk add a quarter of a pound of ground rice, a lump of butter the size of a walnut, a little lemon-peel, and a table-spoonful of powdered sugar. Boil them together for five minutes, then add half an ounce of isinglass which has been dissolved, and let the mixture cool. When cool add half a pint of good cream whisked to a froth, mix all together, and set it for a time in a very cool place or on ice; when used, turn it out of the basin into a dish, and pour fruit juice round it, or some stewed apple or pear may be served with it.

PEARL BARLEY.—1. It should be boiled for four hours, so tied in a cloth that room is left for the grain to swell. Only so much water should be added from time to time as to feed the barley and supply the waste of evaporation, lest the goodness of the barley should be boiled out. It may be served with milk, or (if the patient can digest them) with preserves or butter.

2. Put the barley with water in a stone jar with a lid, place the jar in the oven ; and let the contents boil gently until the barley is *very* soft ; then strain.

GRUEL.—1. A dessert-spoonful of prepared groats or fine oatmeal to be moistened with a table-spoonful of cold water, and stirred till smooth ; then add, by degrees, three quarters of a pint of boiling water, and stir over the fire till it boils, then let it simmer for eight or ten minutes. A little salt or sugar and butter may be added according to the taste of the invalid. Boiling milk may be added instead of water ; but it must be constantly stirred.

2. Beat up an egg to a froth, add a wine-glass of sherry, flavour with a lump of sugar and a strip of lemon-peel, and have ready some gruel, very smooth and hot, stir in the wine and egg, and serve with sippets of crisp toast. Arrowroot may be made in the same way.

PORRIDGE.—Always use coarsely ground Scotch oatmeal. Mix two table-spoonfuls of it with a small tea-cupful of cold water till it is of uniform consistence. Then pour in a pint of boiling water, and keep boiling and stirring it for forty minutes. It is then fit for use, but may be kept simmering till wanted if more boiling water be added as the other steams away. It should be served in a soup-plate quite hot;

cold milk may be taken with it. Butter may also be added to taste, if not contra-indicated. Most Scotch people sprinkle the meal into boiling water.

ARROWROOT.—Moisten two tea-spoonfuls of arrowroot with two table-spoonfuls of cold milk. When it is quite smooth pour in half a pint of boiling milk; then place it in a bright saucepan, and stir over the fire for three or four minutes. Two or three tea-spoonfuls of powdered loaf sugar may be added to sweeten it. Wine or brandy will frequently be prescribed with arrowroot, it must of course be added in the proportions ordered.

SAGO.—Put a dessert-spoonful of sago into three-quarters of a pint of cold milk, and simmer gently, stirring frequently for an hour and a quarter; skim as it approaches boiling, and sweeten with a dessert-spoonful of powdered loaf sugar.

TAPIOCA AND COD-LIVER.—Boil a quarter of a pound of tapioca till tender in two quarts of water; drain it in a colander, then put it back in the pan; season with a little salt and pepper, add half a pint of milk, one pound of fresh cod-liver cut in eight pieces. Set the pan near the fire to simmer slowly for half an hour, or a little more, till the liver is quite cooked. Press on it with a spoon, so as to get as much oil into the tapioca as possible. After taking away the liver, mix the tapioca. If too thick add a little milk, then boil a few minutes, stir round; salt and pepper to taste.—*Alexis Soyer. Tapioca thus cooked is nourishing and easily digested.*

CARROT PAP.—In Bednar's Kinder-Krankheiten the following formula occurs for carrot pap, which is strongly recommended for children suffering from scrofula, rickets, and worms; and is also suitable for patients recovering from acute diseases, and for dyspeptics.

An ounce of finely grated carrot should be put into half-a-pint of cold soft water, and should stand twelve hours, being frequently stirred; it should then be strained through a sieve, and all the juice pressed out. This juice is then to be thickened with grated bread or arrowroot, and to be set upon a slow fire. After boiling up once or twice it should be sweetened, and is then ready for use.

The juice of the carrot combined with plain water, biscuits, or crusts of bread, contains all the material that is necessary for the nourishment of weaned children or weakly persons—albumen, starch, gelatine, sugar, fat, and salt, and finally even the phosphate of lime and phosphate of magnesia. In the preparation of this food the greatest cleanliness must be observed. The juice must be prepared fresh every day, and must, moreover, be carefully watched, lest fermentation ensue. The large and full-grown carrots are preferable to the young and small.

BREAD JELLY.—1. Take the crumb of a loaf, cover it with boiling water and allow it to soak for some hours. The water, containing all the noxious matters with which the bread may be adulterated, is then to be strained off completely and fresh added; place the mixture on the fire and allow it to boil for some time till it is perfectly smooth. The water is then to be pressed out, and the bread on cooling will form a thick jelly. Flavour with anything agreeable. — *Dr. Churchill.* A good food for infants at the time of weaning, also for children with acute diseases.

2. Cut off the top of a two-penny loaf. Cut the remaining part into thin slices, and toast them of a *pale* brown, *very hard.* Put the bread thus toasted into nearly three pints of water and boil *very* gently, until you find it well set, which you will know by holding a little in a spoon; strain it off very carefully, without breaking the bread, or the jelly will be thick. Sweeten to your taste. It never disagrees with and is very good for infants.

PEARL BARLEY JELLY.—If pearl barley be boiled for six hours, then strained off, the water on cooling will form a nutritive jelly, which dissolves readily in warm milk. It is very well adapted to infants.

NUTRITIVE JELLY.—Isinglass, 1 oz. ; gum arabic, ½ oz. ; white sugar-candy, 1 oz. ; port wine, 1 pint; ¼ nutmeg, grated. These should be put in a jar to stand twelve hours, covered tightly to prevent evaporation, then placed in a saucepan with sufficient water to simmer till the contents of the jar are quite melted; the whole should be stirred, then allowed to stand till cool. A teaspoonful occasionally is very reviving

ORANGE OR WINE JELLY.—A small packet of prepared gelatine should be soaked in one pint of cold water for an hour or more; three pints of boiling water should then be added with a pound and a half of sugar, the juice and grated rind of three or four oranges; the whole should be stirred together until the gelatine is dissolved and intermixed, strained through a clean cloth, (jellybag), and allowed to cool.

If wine jelly be preferred, it may be made in the same manner, adding sherry, madeira, or other pure wine instead of oranges, and proportionately lessening the quantity of water.

INVALID'S JELLY.—Soak twelve shanks of mutton in plenty of water for some hours, clean well, put them into a saucepan with one pound of lean beef, a bunch of sweet herbs, pepper and salt to taste, one onion and a crust of bread toasted brown; add three quarts of water and let them simmer gently for five hours. Strain the broth, when cold take off all the fat.

TAPIOCA JELLY.—The tapioca should be soaked in cold water for several hours, and then cooked until perfectly clear, adding more water if necessary. When done sweeten to taste, and flavour with vanilla, lemon, or wine. When cold serve plain or with cream.

CHICKEN JELLY.—Half a raw chicken, pounded with a mallet, bones and all together; cold water to cover it well; heat slowly in a covered vessel, and let it simmer until the meat is in white rags and the liquid reduced one-half; strain and press through a coarse cloth; season to taste, return to the fire, and simmer five minutes longer; skim when cool. Give to the patient cold, with unleavened wafers.

Arrowroot Jelly.—One cup of boiling water, two teaspoonfuls of Bermuda arrowroot, one teaspoonful of lemon juice, two teaspoonfuls of white sugar. Wet the arrowroot in a little cold water and rub smooth; then stir into the hot water, which should be on the fire and actually boiling at the time, with the sugar already melted in it; stir until clear, boiling steadily all the time, and add the lemon. Wet a cup in cold water, and pour in the jelly to form. Eat cold with sugar and cream.

Arrowroot Wine Jelly.—One cup of boiling water, two teaspoonfuls of arrowroot, two teaspoonfuls of white sugar, one tablespoonful of brandy or three of wine. Proceed as with preceding receipt. An excellent corrective for weak bowels.

Jelly Water.—One large teaspoonful of blackberry jelly, one tumbler of ice-water; beat up well. Excellent for fever patients, or those suffering from gastric irritation.

Iceland Moss Jelly.—One handful of moss well washed, one quart of boiling water, the juice of two lemons, one glass of wine, one quarter of a teaspoonful of cinnamon. Stir the moss (after soaking it an hour in a little cold water) into the boiling water, and simmer until it is dissolved; sweeten, flavour, and strain into moulds. *Good for colds*, and *very nourishing.*

Oatmeal Tea.—Pour a pint of boiling water on a table-spoonful of oatmeal, sweeten with honey, and flavour with the rind of a lemon, cut very thin. Stir it up, and let it stand till cool and clear. It can be warmed for drinking if required.

BARLEY-WATER.—Wash a table-spoonful of pearl-barley in cold water; then pour off the water and add to the barley two or three lumps of sugar, the rind of one lemon, and the juice of half a lemon; pour on the whole a quart of boiling water, and let it stand covered and warm for two or three hours; then strain it. Instead of lemon, currant-jelly, orange-juice, or sliced liquorice may be used to flavour. Barley-water is a valuable demulcent in colds, affections of the chest, etc.

GUM WATER.—One ounce of gum arabic, half an ounce of loaf sugar, to one pint of cold water; should stand near the fire so as to be kept warm, and be occasionally stirred until the gum is all dissolved, and should then be allowed to cool, and will form an agreeable and nourishing drink in fevers. Lemon peel or fruit syrup may be added to flavour.

LINSEED TEA.—1. This is often a useful drink for soothing irritation set up by the cough of Consumption, Bronchitis or Pneumonia, and for the irritation of Diarrhœa, Dysentery, Inflammation of the bowels. It is prepared by adding one ounce of bruised linseed, and half an ounce of sliced liquorice-root, to two pints of boiling water, and macerating in a covered vessel near the fire for two or three hours; it should then be strained through a piece of muslin, and one or two table-spoonfuls taken as often as necessary. Sliced lemon and sugar-candy will make it more palatable.

2. Linseed one ounce, white sugar one ounce, liquorice root half an ounce, lemon juice two table-spoonfuls. Pour on the ingredients two pints of boiling water, let them stand in a hot place for four hours, then strain.

MALT TEA.—Boil three ounces of malt in a quart of water. *In fever cases where the mouth is very dry.*

RICE WATER.—The best Carolina or Patna rice should be washed with cold water, then boiled in a good measure of water for ten minutes, the water strained off, and more added ; and so on till the goodness is boiled out of the rice. The water is ready to drink when cold. Cream may be added if there be not high fever: a pinch of salt also, if desired, or flavouring as for barley-water.

TOAST-WATER.—1. This is not often well made. A slice of stale bread (crust is better) should be slowly baked through (not burnt), then put in a jug with a quart of boiling water poured over it, and allowed to stand covered till cool. It may be flavoured with lemon peel.

2. Toast slowly a *thin* piece of bread, until it is extremely brown and hard, but not black, put it in a jug of *cold* water, and cover it for an hour before using.

WHITE WINE WHEY.—Put two pints of new milk in a saucepan, and stir it over a clear fire till it is nearly boiling; then add a quarter of a pint of sherry, and simmer for a quarter of an hour, skimming off the curd as it rises. Then add a table-spoonful more sherry, and skim again for a few minutes, till the whey is clear, sweeten with loaf sugar, if required.

TAMARIND WHEY.—Stir two table-spoonfuls of tamarinds in a pint of milk whilst boiling; when the curds are formed, strain off. It is a cooling and slightly laxative drink.

WHEY may also be made by heating milk till it almost boils; then adding the juice of an orange or lemon, or a couple of juicy apples cut in slices, or a large table-spoonful of vinegar, or treacle, or honey; or sufficient powdered alum or cream of tartar, or tartaric or citric acid, to cause curdling; finally, straining and sweetening to taste.

ICELAND MOSS AND MILK.—Soak an ounce of Iceland moss in half a pint of hot water for a quarter of an hour, strain, then boil the moss in a quart of water till it is reduced to a pint; strain again, and boil the liquor (without the moss) down to a third of a pint. Mix this with half a pint of hot milk, sweeten and flavour to taste.

RICE MILK.—If milk be plentiful, the rice may be boiled in milk; if not, boil it in water to plump and soften it, and when the water is wasted put in the milk; taking care that the rice in thickening does not stick to the saucepan. Season with sugar and a piece of cinnamon. A bit of lemon or orange peel will give zest.

SAGO MILK.—Soak the grains in water for an hour before boiling, or boil first in water for two or three minutes, which water pour off. Boil a large spoonful in a quart of new milk, sweeten and season to taste. Ground rice may be prepared in the same way and smaller quantities used.

MILK AND MEAL.—Mix a large tea-spoonful of either baked flour or corn flour, or arrowroot, or other farinaceous food, as may be indicated by special symptoms, in a little cold milk ; heat a pint of milk, and when it is about to boil, add to it the farinaceous preparation and keep stirring while all boils together for five minutes. Sweeten with sugar, and flavour with lemon or nutmeg, according to taste. This is very useful when beef tea, eggs, and light puddings cannot be taken ; the milk is more nutritious than when taken by itself, and is less liable to turn sour.

The quantity of flour, etc., may be raised. The ordinary proportion is a large dessert spoonful to half a pint of milk.

LEMONADE.—Well rub two or three lumps of sugar on the rind of a lemon, squeeze out the juice, and add to it nearly a pint of cold or iced water ; or better, one or two bottles of soda-water.

2. A lemon should be cut into slices, and put into a jug with several pieces of loaf-sugar. A pint of boiling water added, covered, and allowed to cool. After straining, it is fit for use. This beverage is recommended to allay thirst, irritation of the throat, etc. It may be made to effervesce by the addition of a very little carbonate of soda.

3. Three pounds of loaf sugar, 1½ pint of water, 2 ozs. of citric acid, 60 drops of essence of

lemon-peel. Put the sugar into an enamelled saucepan, and pour the water on it; *just* boil it. When *half* cold put in the citric acid and stir with a silver spoon, and add the essence of lemon-peel. A table-spoonful to a tumbler of water. When the lemonade is cold bottle it.

LINSEED LEMONADE.—Four tablespoonfuls of whole linseed, one quart of boiling water, juice of two lemons. Pour the boiling water upon the linseed and steep three hours in a covered vessel; sweeten to taste; if too thick add cold water with the lemon juice. It is *admirable for colds.*

NITRIC LEMONADE.—Twenty to thirty drops of *dilute nitric acid* should be added to eight ounces of pure cold water, and flavoured with honey or loaf-sugar; from a tea-spoonful to a table-spoonful, according to age, may be given two or three times daily. Nitric lemonade modifies sickness in Hooping-cough, and is useful in some cases of Bronchitis, Consumption, coughs from relaxed uvula, night-sweats, etc.

EGG NOGG.—The yolks of two eggs and half an ounce of sugar should be thoroughly rubbed together; then add four ounces of the best French brandy and four ounces of cinnamon water, and mix well.

SOWANS OR FLUMMERY.—To any quantity of oatmeal you like to infuse put double the weight of warm water; stir well, and let the mixture infuse for four or five days in a warm temperature; add more water, stir up, and strain. Let the liquid stand till the *starch* falls down in a white sediment, pour off the water, and mixing as much of the starch or sediment as is wanted with water to thin it, boil, stirring briskly for a quarter of an hour till a jelly is formed. Sowans are eaten with milk, butter, or cream, and by convalescents with wine or milk as prescribed.

WHITE CAUDLE.—Mix two large tablespoonfuls of finely ground oatmeal in water two hours previously to using it, strain it from the grits and boil it, sweeten and add wine and seasoning to taste; nutmeg or lemon juice answers best.

APPLE WATER.—To juicy apples sliced, add a little sugar and lemon peel; pour over them boiling water; strain when cold.

CREAM FOR STEWED FRUIT.—Boil an ounce and a half of isinglass in a pint and a half of water over a slow fire till there is only half a pint. Strain and sweeten, add a glass of sherry, and stir in half a pint of good cream; stir till cold.

FRUIT CREAM.—Gooseberies, apples, rhubarb, or any fresh fruit may be used. To every pint of pulp add one pint of milk or cream; sugar to taste. Prepare the fruit as for stewing, put it into a jar with two table-spoonfuls of water and a little good moist sugar. Set the jar in a saucepan of boiling water, and let it boil until the fruit is soft enough to smash. Then beat it to a pulp and work this pulp through a colander. To every pint stir in the above proportion of milk or cream; if obtainable the latter is of course preferable.

COCOA FROM NIBS.—To produce cocoa from nibs, one of the most wholesome and nutritious of beverages, the following method is recommended. For two persons, take of Fry's No. 1 nibs a small teacupful, and soak them in one quart of water overnight; next morning boil briskly for two hours, then strain off, and use directly with boiling milk. It should not be re-warmed, as it loses its flavour, just as tea does when warmed up again. The best way of boiling it is in a block-tin three-pints wine-muller, over a small gas stove; or, better still, the new French milk saucepan, which consists of white ware fitted into an outside tin casing. The cocoa nibs, already soaked, as previously directed, should be put with a proper quantity of water into the white ware, the outside vessel being also filled with water, and boiled for two hours.

NUTRITIOUS COFFEE.—Dissolve a little isinglass in water, then put half an ounce of freshly ground coffee into a saucepan with a pint of new milk, which should be nearly boiling before the coffee is added, boil both together for three minutes; clear it by pouring some into a cup and dashing it back again, add the isinglass and leave it to settle for a few minutes. Beat up an egg and pour the coffee upon it; or, if preferred, drink it without the egg.

NUTRIENT ENEMA.—Take of beef tea half a pint, and thicken it with a teaspoonful of tapioca. Reduce 1¾ oz. of raw beef to a fine pulp, pass it through a fine colander, and mix the whole with twenty grains of acid pepsine (Boudault's *poudre digestive*), and four grains of diastase (or a dessert-spoonful of malt flour); where the latter is used the tapioca may be omitted.

It should have a bright rose tint, and exhale a rich meaty odour. Not more than a quarter of a pint should be used at a time, and that slowly.

Pending the arrival of the pepsine and the malt, the other portions of the liquid may be administered alone.

EGG AND SUGAR ENEMA.—Beat up the yolks of two eggs with two wine glassfuls of hot water in which an ounce of lump sugar has been dissolved.

OIL AND SUGAR ENEMA.—Gradually rub up half an ounce of gum arabic with two table-spoonfuls of water ; then gradually add and rub in two tablespoonfuls of olive oil or cod liver oil ; then stir in a wine-glassful of hot water in which an ounce of lump sugar is dissolved.

PANADA.—Slice the crumb of a loaf very thin, and soak or boil it gently in water. When soft beat it up well and add sugar, and if allowed, wine ; a little butter may also be added. Panada may also be made of chicken broth instead of water and seasoned with a little mace, and is excellent for invalids.

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